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Some Books on Perspective.

BOOKS on perspective almost always remind us of the story of Rossini taking up an elaborate treatise on counterpoint by Fétis, in the presence of its author, and saying, after turning over the leaves rapidly for a minute or two, "My dear Fétis, does it take all this learning in order to compose?" So one is tempted to say, on turning over books on perspective—"Does it take all these pages and diagrams to expound so simple a matter?" For surely perspective is really a very simple matter—until people come to explain it. It is the explanations that puzzle students. Any one who has once drawn a square box in perspective, and has learned how to fix the apparent position on the picture plane of any point in a geometrical diagram, has grasped the science of perspective; all the rest is only detail; even the direction of lines which are not level need not trouble him, since we have it on the best authority that "the extremities of a line are points." Theoretically even the drawing of curves comes into the same category, since they can be formed by taking a sufficient number of points; but since the finding of a great number of points is not only irksome but is liable to instrumental error, it comes about that the drawing of circles and other geometrical curves in perspective is partly a matter of eye and observation, and thus an element of art is introduced into what otherwise is an exact science. For that is the difference between perspective and foreshortening; the one is science, the other art; and it is rather a curious thing that many painters who have mastered the difficult art of foreshortening a body or a limb have never acquired the amount of perspective science necessary to put a circle or a part of one in true perspective, though they might have acquired it at one-twentieth part of the study and training necessary to draw the figure in a foreshortened position.

An American architect, Mr. W. P. P. Longfellow—the inheritor of a name beloved on both sides of the Atlantic—in the preface to his important work on perspective,* admits the position that "the practice of perspective depends not so much on many principles as on the varied application of a few." Writing for painters as well as architects, and feeling, as he well says "the paramount importance of what may be called the perspective sense, the faculty of perceiving perspective relations on what is before one in nature or in imagination," he has commenced by setting forth these relations as they appear to the eye, showing how they influence the architect's and the painter's way of looking at things. The problem for the architect and the painter is in some respects a different one, in practice though not in theory; the architect is concerned in general with the lines of a building and a few of its immediate surroundings; the painter, unless painting an interior or a foreground figure subject, is concerned with the sweep of the perspective of a whole landscape. The laws which govern the perspective appearance of the building are the same which govern that of the landscape; a fact which is not always recognised, for the definite and sharply-defined geometrical lines of a building seem to admit of reduction to a scientific law in a manner in which the more irregular contours of a landscape do not. And as regards details this is so; an arch, which we know is an exact geometrical shape, must be represented in perspective with scientific accuracy, or a sense of distortion is the result; a tree, a hedge, or a hill, not being bounded by geometric curves, may be varied from what ought to be its perspective line without offence to the eye. In landscape perspective in small details is for this reason of less consequence than in architecture—their forms are not so rigidly defined; but the perspective of the whole composition is of the first importance. Mr. Longfellow, however, alludes to instances in which the true effect of the perspective in the relation of the landscape to the horizon has been entirely missed; though we are not sure whether his reasoning is not open to question on one point. The horizon is the height of the eye; and as he says, looking down from a height on a plain, the head of any person on that plain, near or far, must come below the horizon, unless it is the head of a giant. He proceeds to apply the same reasoning to ships; if the observer looks out upon the sea, all the vessels on it will be cut by the horizon at the same number of feet above the water, irrespective of their distance from the observer; and he mentions the case of sea-paintings in which near vessels are below the horizon, and distant ones rise above it, irrespective of their size. That is a true criticism within certain limits. If the eye is on the same height as the deck of a "liner," the deck will appear level with the horizon, and the top of the mast of a small boat, which is the same height as her deck, will also touch the horizon, whether said boat is a mile nearer or a mile further off than the liner. But there comes a limit to this reasoning when the liner approaches the horizon; her hul does not go down flat, it stands visibly above the horizon line and then gradually drops below it. Mr. Longfellow recognises this in a footnote, but dismisses it with the reflection that ships at this distance are not subjects for pictures; but we hardly think the discrepancy in the theory can be dismissed in so casual a manner as that. Ships in such a position, if not "subjects for pictures," are subjects *in* pictures, and in the case of vessels of the largest size, the point where the deck would appear to rise above the horizon is not at the extreme limit of view. The reason of course is that, the surface of the earth being a curve, the vanishing plain is not illimitable. We agree that in the majority of cases it may be treated as if it were; but we think a little more importance should have been attached to this point in the text, instead of throwing it into an apologetic footnote.

It is difficult for those long accustomed to perspective drawing to put themselves in the position of the beginner to whom it is all new; but as far as we can do so it appears to us that Mr. Longfellow's exposition of perspective as applied to architectural drawing is very clear and lucid. What he says as to the drawing of circles in perspective is very useful, and might draw the attention even of experienced artists to points that are often overlooked. As a general rule we think that architectural draughtsmen know very well how to draw circles in perspective—in this country at all events; but it is quite certain

* "Applied Perspective for Architects and Painters." By W. P. P. Longfellow. Boston and New York; Houghton Mifflin & Co.

that many painters do not. Our observation is entirely in accordance with that of Mr. Longfellow, when he observes that "comparatively few painters put into their pictures an arcade or a round tower banded with string-courses at which the eye trained to such things can look without offence. . . . . The relation of the successive string-courses of a round tower is full of grace which is often unseen by those who paint them. The rings merge into the vertical lines by delicate tangent curves, yet it is common to see them drawn with a corner" (at the junction with the bounding vertical line of the wall). This is exactly what we have frequently pointed out in relation to the drawing of St. Paul's dome and its cornice curves; a rather favourite subject with painters, who almost invariably show that they do not know how to draw it. It is a useful remark on the same page that "it is common even among artists to believe that the perspective ellipse of a vertical circle stands upright, that is, that its longest diameter is vertical"; the author shows that it is not, and why; and that this idea is true only when the centre of the vertical circle is on the horizon line, so that the perspective curve is in the same relation to the vertical both above and below the horizon line. Otherwise, the major axis of the ellipse is more or less out of the perpendicular. It is a confusion of perception on this subject which has led some writers on perspective to deny that the circle in perspective is an ellipse. On the other hand, however, when the author gives a reproduction of a photograph of a clockface on a tower at Como, to show how far distortion may take place in a perspective circle in certain positions, he is overdoing his case, as what he presents is a photographic distortion arising from taking a too near point of view. A perspective drawing logically constructed from the same point of view would present, no doubt, the same distortion, but it would result from the initial mistake of adopting a standpoint too close to the picture plane, and endeavouring to include too large an angle of vision in the view.

Mr. Longfellow adopts what we believe is a new term in regard to the vanishing points of two series of lines at right-angles to each other; in view of their close perspective relation, he says, "they may be called conjugate vanishing points, and will be so called here." There is no doubt a close geometrical relation between them in the setting-out diagram, as illustrated in the simple method he suggests of getting the second vanishing point after the first has been determined, by merely drawing, from a centre on the horizontal line, a circle which shall cut the vanishing point and the end of the vertical line, the cutting of the horizontal line at the opposite side of the circle giving the other vanishing point, since a right-angle is necessarily included in the half circle. This looks very neat, though we do not know that it is really any quicker than laying out the right angle with a square. Nor do we see why, except in regard to this geometrical relation in setting out, there should be supposed to be any closer relation between the vanishing points of two sides of a building which are at right angles, and two which are a little less or a little more than a right angle. The problem is practically the same, after all, and it seems to us that this title of conjugate vanishing points is little better than a piece of nomenclature, and a somewhat unmeaning one, if not misleading. We have a chapter, later on, on tri-conjugate vanishing points, where for instance a cube lies on a surface inclined to the horizon, so that none of its edges are vertical, and none parallel to the picture. The case is illustrated with some elaborate diagrams, which appear to us, as in other cases in this and other treatises, to obscure and befog what should be a very simple problem. Mr. Longfellow's treatise, however, is a very good one for those who like to have the whole subject argued out and demonstrated; only we incline to think that he who cannot draw anything or everything in perspective without all this investigation and diagrams will never be much of a perspective hand, except in theory.

Mr. R. G. Hatton's smaller book* is a much more rudimentary one, but it is admirably adapted for giving a young student first ideas as to the meaning of perspective; and the illustrative diagrams and sketches, somewhat rough though they are, tell their story very plainly. He commences by pointing out that as a rule all forms may be said to be enclosed in a cube form or a parallelopiped form, and that in these forms the lines go in three directions only, to the right, to the left, and upward ("vertically" would be a better definition). "He who has mastered these three lines, especially if he can sketch them in by freehand, has mastered perspective." Mr. Hatton goes on the principle of showing the student practically what perspective is, and in what consists the nature of a perspective representation, before entering on the geometrical proof. This is the reverse of the system usually adopted in perspective treatises; but as a means of giving an idea of the object aimed at, and of the nature of the method employed, there is much to be said for it. The rough sketch of an artist sitting before a large canvas in the open country, with the main lines of the landscape carried on over it so that they may either be regarded as the real lines seen *through* the canvas, or as their representation *on* the canvas, is one of the best practical explanations of the function of the picture-plane that could be given; it explains the whole thing at a glance. Excellent also is the explanation, further on, of the method in which positions of objects above or below the eye affect their leading lines. The simple geometrical problems of perspective are illustrated later on in the book, always in a very intelligent and sensible manner, and without any unnecessary lines; indeed in one case the author gives a problem (fig. 103), the outline perspective of a house, with all the working lines scored over it, for the express purpose of showing, as he says, "how these lines tend to obliterate the picture and confuse the student"; a piece of commonsense which one wishes that one could meet with more often in perspective books. Just as many of these might be called "perspective made difficult," Mr. Hatton's book deserves, we think, to be called "perspective made easy." It is an eminently commonsense book, and may be recommended as such for the teaching of beginners.

With Signor Giampietri's essay we come again to what we suppose must be called the higher theoretical levels of perspective, though he specially calls it "practical perspective."* It is unfortunate that in printing this the plates have not been extended on long pages so as to open out beyond the letterpress pages; they are bound at the end of the letterpress, with the consequence that one can only follow out the author's elaborate diagrams and argument by constantly turning the pages from the text to the illustration, as it is impossible to see both at once. The author's own practical mastery of perspective is attested, as the frequenters of our water-colour exhibitions know, by numerous fine and masterly drawings of architectural subjects. Signor Giampietri's object is to do away with the necessity of plan or elevation of the object to be drawn, and to work out the whole operation within the space of the paper or canvas, "if to the right and left of the paper or canvas two laths, or similar appliances, be fixed at the height of the horizontal line, to carry those points to which certain lines tend." His method seems in one sense to fall in with the remark made in our first paragraph, that any one who can find the perspective position of two points in relation to each other can put anything into perspective. But so far as we have had time to follow out his system (with the before-mentioned hindrance from the awkward way in which the book is made up), he certainly appears to have complicated rather than simplified the problem of perspective, and in his desire to avoid the necessity of a plan he has formulated a system much more lengthy and complicated, and requiring a great many more lines, than the system of projecting from a geometrical plan. His work is in fact a very interesting study in geometrical problems, and may interest many readers as a piece of geometrical reasoning, but we can hardly regard it as essentially or specially practical.

* "Perspective for Art Students." By Richard G. Hatton. London: Chapman & Hall; 1902.

* "A New System of Practical Perspective for Artists and Architects." By Cav. Settimio Giampietri. Institute of Architects' *Journal*.

WORKMEN'S COMPENSATION ACT AMENDMENT BILLS.

TWO Bills entitled Workmen's Compensation Act Amendment Bills are at present before the House of Commons, numbered respectively No. 2 and No. 3. They should also be entitled "extension" Bills, as either Bill would extend the operation of the Act. No. 2 Bill applies the principal Act to "employment of every kind in which any person is engaged in the United Kingdom or on a British ship," which would include clerks, shop-hands, domestic servants, or any one with an employer. Bill No. 3 is not so explicit. The expression "workmen" is used in speaking of those entitled to compensation, and "workman" is defined in much the same terms as in the principal Act, but without the limitation, "engaged in an employment to which this Act applies," which occurs in Section 7 of the principal Act.

An exhaustive review of either measure would not be appropriate to these columns, but we would draw attention to one or two of their provisions which would especially affect the building trades, in common with employments at large.

Bill 3 puts forward an entirely new principle, giving "undertakers" who pay rents or royalties to owners of real property upon which an industry is carried on the right

of claiming from such landlords a contribution of one-fourth of any compensation they may have to pay. As the clause is drawn this only applies to such undertakers under the principal Act, and not to all employers under the amending Act. Clause 3 of this Bill also abolishes the defence of contributory negligence under the principal Act. This seems superfluous, as such a defence is not available; the clause, however, proceeds, "or any other defence in such proceedings," which seems directed to do away with the defence of serious and wilful misconduct, which is the only defence at present available arising out of the conduct of the workman himself. Clause 5 also abolishes the defence of "common employment," *i.e.*, negligence on the part of a fellow servant, "under this or any other Act," notwithstanding any contract to the contrary. This defence is not at present available in the absence of contract, either under the Workmen's Compensation Act or the Employers' Liability Act; and, as Clause 4 makes contracting out of the Workmen's Compensation Act before the accrual of the right no defence, this clause seems also to a great extent unnecessary. Bill 2 deals with this question in a more intelligible manner, making the Workmen's Compensation Act apply, notwithstanding any contract to the contrary made before or after the Bill becomes law. The reason for such a clause is apparent, as Section 9 of the principal Act only appears to void contracts existing at the time that Act came into operation.

Both Bills are directed to making compensation payable from the time of the accident, and not two weeks after, as the law now stands, in cases of incapacity.

The scale of compensation is dealt with in both Bills. Bill 3 makes the same compensation recoverable whether the workman leaves dependants wholly or only partially dependent on him, and provides that where a man has been employed less than three years, whose death results from the accident, or less than twelve months when incapacitated, his average weekly earnings are to be calculated as six times his average daily wages.

Bill 2 adopts the same principle of calculating average weekly earnings where any man has been employed less than two weeks by the same employer, but further provides, where the employment has been for one day only, that six times his earnings or agreed wages, whichever is higher, are to be deemed his average weekly earnings. This provision would still leave the case of a man only employed part of a day in doubt, and both Bills appear subject to the objection on principle that they unduly favour men only casually employed, since the man in regular employ can rarely claim six clear days a week on full pay.

Clause 6 of Bill 2 removes the present limit of 1*l.* for any weekly payment to men incapacitated, and in cases of permanent disablement fixes a minimum of 10s.

Of the two measures Bill 2 seems to us the most practical, but both measures are liable to serious legal objections; and as the working of the principal Act is now at last becoming understood, we think the Government is wise in itself introducing no amending measure at present, although such a step will later become necessary to remove several well-known defects and hardships.

NOTES.

The Education Bill.

It is evident that the interest of the general public in the Education Bill is fixed chiefly on the question of primary education and the proposed absorption of voluntary and Board schools by the Committees of the County Councils. Secondary and technical education seem likely to be overlooked in the excitement of a contest between Churchmen and Nonconformists over the control of the primary schools. As we recently pointed out, there already exists a fair system of primary education in England, and what is necessary to be now established is a system of technical and secondary education. That should be the work of the Government during the present session; but if they insist on pressing on the portion of the Bill relating to primary education, it is not only extremely probable that the whole Bill will be lost, but an atmosphere of conflict will also gather around the appointment of the Educational Committees both for secondary and technical instruction. Religion has absolutely nothing to do with technical education, and it would be lamentable if from one end of England to the other persons were elected to the new Committees not because of their fitness for managing technical and secondary colleges and institutions, but because they were Wesleyans or High Churchmen.

Stonehenge.

The decision of the Wilts County Council as to the enclosure of Stonehenge is naturally being awaited with a good deal of interest. We hope, however, that the legal proceedings which the *Times* seems to suggest will not arise. Sir Edmund Antrobus has enclosed Stonehenge by a wire fence, and the question before the Wilts County Council is whether the public have a right of access to this historic monument. It is quite clear that Stonehenge should be taken charge of by public authority, and we cannot believe that a private owner, if judiciously approached, would the least object to hand it over to the public. It is of no private value, and if the right of the public to the place is legally established it may very well result in all sorts of people damaging the stones unless the County Council can also claim possession of the monument; for the right of access does not, of course, include the right of public protection, and the place will still remain private property unless some amicable arrangement can be arrived at between the Council and the present owner.

Contract Conditions.

In settling the general clauses of a specification reliance is too frequently placed upon forms which have served for previous contracts. Although no trouble may previously have arisen, it is not safe to assume that immunity is secured, as the following case may demonstrate. In the specification used by a well-known architect in connexion with an important building contract one clause apparently reserved to the architect the right of dealing with all provisional amounts as he might think fit. Similar wording had been employed in several specifications of a like nature, and a feeling of security was thereby engendered. Hence, when the proper time arrived the architect proceeded to issue instructions for the preparation of materials and appliances involving outlay to the value of some thousands of pounds. The building contractor and the firms concerned were equally satisfied in their own minds as to the meaning of the clause in question, but the proprietors suddenly interposed with a claim to decide for themselves as to the disposal of all provisional sums, refusing to recognise all instructions given by the architect. Legal opinion was taken on both sides, and it then appeared that the clause relied upon did not legally confer any power upon the architect unless with the previous consent of the proprietors. Matters then became somewhat unpleasant, and an interesting series of lawsuits at one time appeared to be imminent, but ultimately all differences were amicably adjusted. The example to which we have referred clearly indicates the desirability of looking with caution upon forms of expression whose actual value has not been ascertained with certainty.

Recovery of Expenses from Sanitary Authorities.

The case of "Proctor *v.* Mayor, &c., of Islington" (*Times*, April 10) raises an interesting question. The drainage of one of two houses being defective, the lessee received a notice of the fact from the Sanitary Authority. The lessee proceeded to carry out the work, but in the course of the repair it was discovered that one drain received the drainage of both houses, which the Sanitary Authority admitted constituted the drain or sewer for the repair of which they were liable. The notice served on the lessee seems merely to have been a notification of the defect under Section 3 of the Public Health (London) Act, 1891, and not an abatement order under Section 4, for non-compliance with which a penalty attaches. The lessee sued the Sanitary Authority to recover the money she had expended as money paid at their request, but Mr. Justice Wright held that she had not acted under such compulsion as to enable her to recover. If the notice had been an abatement notice under Section 4, on the authority of the case "Andrew *v.* St. Olave's Board of Works" it appears that the plaintiff could have recovered both by virtue of Section 11 of the Act, whether she was compelled to do the work or not, and at common law as having been compelled to do what the defendants were legally compellable to do. As regards this latter point, however, a defence was suggested by the Court in the case of "Self *v.* Hove Commissioners" that sanitary authorities were not deemed to be under such compulsion to do work when under their statutory powers. They can throw the liability on some one else, but the case was eventually decided on other grounds.

The Drainage of Falmouth.

It is odd to note how unbusinesslike business men often are in regard to sanitary matters, when they are acting in a public capacity. At the present time the Local Government Board insists that there shall be a new system for the disposal of the sewage of Falmouth, and the Corporation is rather like a horse which will not take the fence in front of it. The last step which has just been taken by the Corporation is to empower the surveyor of the borough to prepare plans, so as to avoid the expenditure which is apparently required in order to carry out a really ex-

tensive scheme. Men of business, in conducting their own affairs, would certainly not act in such a near-sighted way. Efficient sanitary plans require to be worked out by an engineer of experience, and plans by an amateur made in order to save money are almost certain to be rejected by the experts who advise the Local Government Board. Moreover, in carrying out any plan for sewage schemes in a growing town such as Falmouth, or, indeed, in any similar case, it is desirable not only to consider the needs of the present but of the future. For if a plan is carried out which is only sufficient for immediate needs, in a few years' time it may have to be enlarged at a much greater expense to the ratepayers than if a more extensive design had been carried into execution in the first instance. Where a place is both a harbour and seaside resort a thorough system of sewage disposal is especially essential; and it is absurd to argue that, because a place is healthy at the present time, therefore improvements are not needed, since the very object of them should be to prevent any deterioration in the sanitary condition of the town.

A Concrete Factory Building.

A FACTORY building, five stories high and occupying a site of 50 ft. by 25 ft., has recently been completed in Jersey City, having the foundations, walls, floor beams, girders, and roof made entirely of armoured concrete. The building contains about 500 yards of Portland cement concrete, and 12 tons of twisted steel rods, varying from ¼ in. to 1 in. square. The ground floor is supported about 5 ft. above ground level on foundation walls with expanded bases of sufficient area to reduce the pressure on the unstable soil to 2,000 lbs. per square foot. All the floors are designed for loads of 250 lbs. per square foot, and each consists of a continuous concrete slab, 4 in. thick in the case of the ground floor, and 2½ in. thick in all other floors, finished with a ½ in. granolithic surface. The floor joists on the ground floor are of steel-concrete, 26 in. from centre to centre, and measure 4 in. wide by 20 in. deep. They are flush with and supported by beams of similar material and depth, but 6 in. wide, each made in two lengths, so as to provide for expansion. On the upper floors the joists and beams are of lighter construction, and flanges are moulded on the lower edges of the joists to carry wooden beams, to which hangers for shafting may readily be secured. Twisted steel rods are carried through all concrete work, and the lower portions of the joists and beams are strongly reinforced in this manner for withstanding tensile stress. The steel rods are joined together by means of sleeve-nuts, and so continuity of support is secured. This factory building is interesting as an example of concrete construction, but the adoption of concrete joists and beams seems to offer little advantage, while the great depth of such members would frequently be a distinct drawback.

Fire-tests on Hardwood Doors.

WE have received from the British Fire-prevention Committee the official Reports (Nos. 68 and 70 of the Committee's publications) of two sets of fire-tests on doors made of Jarrah and Karri wood; one of each in each test. The tests were for resistance to a fierce fire of one hour, rising to a temperature of 2,000 deg. Fahr. In No. 68 the doors were each 1¾ in. framed with 1¾ in. solid panels. In No. 70 the doors were 2 in. four-panelled doors, bead flush both sides. In both cases therefore the panels were the same thickness as the stiles, but in No. 68 the panels and stiles were jointed with a separate slip piece mortised into both, in No. 70 they were jointed with a tenon worked solid out of the panel. The results in the two tests do not seem to have differed much, and they did not tend to show that doors of these thicknesses, even in these hard woods, could be depended on for long in a fire, though the results are no doubt better than with doors of softer woods. In No. 68 test there does not seem to have been any noteworthy difference in the resisting power of the two woods; but in No. 70 test it is noted that at the close of the test the Jarrah was still standing, while the Karri door was practically destroyed. The Committee intend to have some more tests with doors made of these Australian woods. It would be interesting to see what would be the result of tests with solid 3-in. cross-barred doors, made with as few joints as possible.

Liverpool Architectural Society.

THE annual Report of the Liverpool Architectural Society records that the fifty-fourth session (1901-2) has been marked by the Incorporation of the Society, the official title of which is now "The Liverpool Architectural Society (Incorporated)." The Council made an effort for the omission of the awkward addition of the last word, but it appears that the Board of Trade insisted on it. We quote the following paragraph from the Report, in regard to the Liverpool Cathedral question:—

> "The year has witnessed the second attempt to provide Liverpool with a Cathedral. During the spring of 1901 it was rumoured that a committee of prominent Churchmen, who were investigating the advantages of the various sites, had decided on the blunted triangle known as Monument-place; but to the surprise of nearly all architects, it was announced that they had selected St. James Mount. The Council took immediate steps to protest; they drafted a report which was adopted by the Society at a special meeting and sent to the Press and the members of the Cathedral Committee. Owing to unforeseen circumstances no protest could be made at the public meeting held in the Town Hall, on June 17, when the choice of St. James site was ratified. The Council, although deeply regretting the decision of the meeting, has taken no further steps to oppose what was evidently the wish of the majority of those outside the profession."

We expect that the cathedral, if built at all, will now be built on the architecturally unsuitable site that has been selected; but we are none the less of opinion that it is a mistake, and that this will be admitted when, probably, it is too late to remedy it.

A Restored Fountain in Rome.

ONE of the latest additions to the restored monuments of the Eternal City is an elegantly designed fountain in the somewhat cold classic style of the eighteenth century, by Carlo Fontana, the architect who did so much to transform the work of Bernini at the old Pontifical palace of Montecitorio. This fountain has a certain originality. It consists of the usual arrangement of vases one within another, with an upward shooting jet of water, within a severely outlined frontispiece—an archway in the Roman Doric order against an otherwise blank wall—above which is placed one of the usual inscriptions surmounted by the Papal arms of the period. The whole forms a pleasing courtyard design in a crowded city, and suggests the usual Roman design for such monuments which culminates in the celebrated Trevi fountain. The fountain is situated in an inner court of the present Italian Houses of Parliament, where a formerly dusty and uninteresting *cour d'honneur* has been turned into a luxuriant garden with this agreeable feature in the midst.

Messrs. Tooth & Sons' Gallery.

AT the Spring Exhibition at Messrs. Tooth & Son's Gallery in the Haymarket a special feature is made of a collection of landscapes by Mr. David Farquharson, which occupy the small outer gallery. These are mostly of Scotch scenery, and are very good, broad in style and full of powerful open-air effect. Among the most striking are "Golden Autumn, Glen Falloch" and "Summer Showers, Ben Venue." In the main exhibition in the large room the central work is a sacred picture by M. Dagnan-Bouveret "Madone," a rather curious medley of a visionary Madonna with realistic surroundings; the face and the general pose of mother and infant are very pleasing, but the picture as a whole is a rather bewildering conception. Among the other works are a fine though small sunset scene by M. Harpignies, "Site d'Italie"; a specimen of M. Gérôme (41) not quite at his best; a fine Meissonier, "Les Bons Amis"; a characteristic piece of bluster by M. Roybet—the modern Frank Hals, as he may be called; a beautiful little landscape of the highest finish, "Midday" (71), by Mr. H. W. B. Davis; two or three good Dutch *genre* and family scenes by Herr Neuhys; a couple of Mr. Blinks's inimitable dogs; and several brilliant little works by M. Gallegos, among which "Seeking New Mission Fields" is remarkable for point and humour as well as for finished execution.

Mr. McLean's Gallery.

AT Mr. McLean's Exhibition in the Haymarket there is to be seen what may be called a typical work of M. Bouguereau's (for those who like that kind of type), "The First Kiss," exchanged between two of the artist's charming child figures—the classical, not the rustic, variety—perfect in design and drawing and delicate in colour. As a type of the supremely pretty in art no one could surpass it. By M. Roybet there is "A Dutch Burgomaster," obviously painted from the same model as the "Standard-bearer" in the next-door gallery. M. Léon Lhermitte's "Gleaners" is a powerful landscape in his severe and uncompromising style. Beyond these there are no works in the large room that are of the first order of interest; Mr. Hurt's imitation of Mr. Peter Graham—"A Showery Day—A Glen near Inveroran," is very successful in that sense; but then Mr. Graham did it first. The best part of the exhibition is in the small outer room, where there is a fine example of Diaz, and examples of the work of M. Jacque, Mr. Fritz Thaulow, and M. Harpignies, who is represented among other things by a large gloomy brown picture, "The Long Rocks in

the Forest of Fontainebleau," which has a power of its own in a somewhat depressing way.

Mr. Wallace Rimington's Exhibition.

AT the Gallery of the Society of Fine Arts there is on view a collection of water-colours by Mr. Wallace Rimington, under the title, "England and Spain, Contrasted in Landscape and Architecture." This is an interesting programme for an exhibition, and has been very well carried out in a series of drawings which are noteworthy both for landscape effect and for the treatment of the buildings. Some piquant contrasts are arranged in the hanging; the rich and florid architecture of the "Cloisters, Pamplona Cathedral," for instance, hanging above a representation of the sober dulness of the tower of "St. Mary of the Steps, Exeter," and other similar contrasts may be noticed. "Exeter from the Canal" (25) is an admirable work; so is "A Patio in Zaragoza" (23); and many others might be named. The collection is well worth a visit.

Charles Kean's Scenery.

WE learn that a collection of drawings illustrating the scenic effects in the Shakespearian revivals and other plays produced by Charles Kean during the years 1851 to 1859, has been presented to the Victoria and Albert Museum by Mrs. F. M. Paget, a niece of Mrs. Charles Kean, and will shortly be on view in the museum. The drawings were made for Charles Kean by his principal scenic artists, Messrs. Telbin, Grieve, Cuthbert, Gordon, and F. Lloyds, as records of the plays. It will be of some interest to see how these designs will compare with some of the recent remarkable efforts in scenic mounting. In regard to the architectural details of his Shakespearian scenes Kean was, we believe, much assisted by the late Mr. George Godwin, the former editor of this journal.

ABBEY DORE.

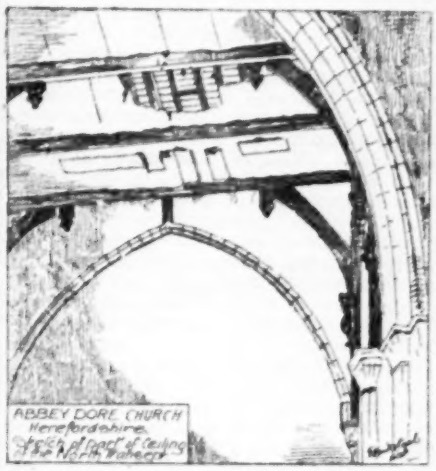
APPEALS are being made for funds for the further repair of the celebrated and interesting church of Abbey Dore, the only Cistercian Presbytery in England still used for public worship. The work is under the charge of Mr. Roland W. Paul, who knows the building probably better than any one else, and whose name is a guarantee that nothing will be attempted in the way of "restoration" in the objectionable sense of the word. But the fact that the church is in modern use for service of course emphasises the necessity for keeping it in repair.

The work which was absolutely necessary has been divided into the following sections: (i.) The Tower, (ii.) The Roofs and Ceilings, (iii.) The Main Fabric, Porch, and Glazing, (iv.) The Floors and Drainage. Tenders were invited for the whole work, and that of Messrs. Collins & Godfrey, of Tewkesbury, was accepted. The amount is 4,395*l*. By September last the Committee had raised 1,429*l*., and decided to proceed at once with sections (i.) and (iv.) at a cost of 1,180*l*., as the state of the building rendered immediate attention imperative.

These parts should be completed in the course of the next two or three months, and it is obviously most desirable for the safety of the fabric that the roofs and ceilings should be attended to without delay. The plaster has been falling for some time past, and the defects in the stone tile roof above are constantly aggravating the mischief. Abbey Dore is a poor agricultural parish, and without help from outside the parish it will be impossible to save the church from ruin.

The following is the architect's Report on the work up to the present time:—

"*Section 1.—The Tower.*—On carefully examining the Tower, I found that it would be unnecessary to take down anything below the string course of the embattled parapet. The parapet itself on being taken down has proved to be partly composed of worked stones taken by the builders of 1633 from the ruins of the church, and in two instances interesting inscriptions were found recording the names of benefactors to the church, of thirteenth century date. These stones have been carefully preserved. The parapet is, generally speaking, in good condition, and but few new stones will be required. The string course below, however, is much worn. The old stone tile roof has been removed, and the timbers of the roof were found to be very much decayed. A temporary roof has been erected pending the completion of the new roof, which will be of low pitch and covered with lead, with the old rod and vane refixed.



Section IV.—The Floor and Drainage.—The work in connexion with this section has brought to light a great many interesting details of the old monastic church. At the time the paving was laid down by Viscount Scudamore in 1634, the accumulated soil was evidently only roughly levelled to receive it. On this paving being taken up, a great quantity of loose earth, stones, bones, and skulls were found, and also much of the encaustic tile pavement and painted grisaille glass of the thirteenth and fourteenth century. In nearly every part of the church the ancient levels were found, and in relaying the pavement these old levels have been followed. In one or two instances the walls have sunk considerably, owing to the great weight of the tower erected by Scudamore at the junction of the presbytery and south transept, and here the paving has been stopped so as to expose the original levels. The graves, where found, have been filled in with lime concrete, and the paving, set in cement, has been laid on a bed of concrete not less than 6 in. in depth, and in many places of greater thickness. The old paving has been re-used and all the inscribed stones relaid.

The recovery of the old levels has also exposed th foundations of three out of the five altars that stood in the chapels of the ambulatory behind the sacrarium and the foundations of the screen walls that divided the chapels from one another. In this part of the church were four holes about 4 ft. square, in which were found worked stones, among them being fragments of an aumbrey and piscina. In the north aisle a very delicately carved stone, probably the angle of a canopy of a tomb, was found, and some shafts and bases belonging to the same. Fragments of one of the incomplete effigies at the east end were also discovered.

The encaustic tile paving is of three kinds. (1.) Tiles having shields of arms of families, local and otherwise. (2.) Embossed tiles of diamond shape, mostly with a green glaze. (3.) Conventional foliage patterns; and (4) tiles with inscriptions, one bearing the name of the maker, Martin. Besides these are a great number of plain tiles with good green, yellow, brown, and black glaze. These tiles are probably of the latter part of the thirteenth and early fourteenth centuries.

The painted grisaille glass was found in considerable quantities in the north aisle and north transept, and some of it still retains the conventional designs that were characteristic of glass of this date. Much of it will, I hope, prove to be in sufficiently sound condition for use in some of the windows.

On the exterior the accumulated soil on the north and west sides is being removed. The south walls had been partly cleared a few years ago, but the earth remained for a depth of 3 ft. on the north side, and nearly 6 ft. on the west. A good many fragments of worked stone and encaustic tiles have been found, but the work is still incomplete, and the results will be given in a later report.

The work included in the present sections will in all probability be completed early in the coming spring, and I wish again to draw the attention of the Committee to the dangerous condition of the plaster ceilings and the roofs generally. My original report described the bad state in which I found them, and as time goes on their condition does not, of course, improve. The spring and summer will afford an excellent opportunity of dealing with this really urgent work, and if the remaining sections can be taken in hand before or at the completion of the present ones, there will be no necessity for removing the plant or stopping the works in any way, a matter which I need hardly point out is a most important one in work of this kind.

ROLAND W. PAUL."

The accompanying illustration, from a sketch made by the architect, shows better than words how much some portions of the church are in need of immediate repair.

THE ARCHITECTURAL ASSOCIATION.

A SPECIAL meeting of the Architectural Association was held on Friday, last week, in the Meeting room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent-street, Mr. E. Guy Dawber, vice-president, presiding.

The Chairman said the meeting had been called for the purpose of considering the following alterations and additions to the by-laws:—By-law 26: Substitute the words "First ordinary general meeting" in place of "Annual general meeting." By-law 30: Omit the words "Hon. Auditors." Omit by-law 36. By-law 42 to read: "42. The first general meeting during each session shall be the annual general meeting for that session, and at such meeting the prizes shall be distributed, the president shall deliver an address, and short addresses shall be invited from senior members of the profession. At the first ordinary general meeting each session a statement of the accounts of the Association duly audited by a professional accountant shall be laid before the members."

The Chairman said that, on behalf of the committee, he moved that the above proposals be agreed to.

Mr. R. S. Balfour, hon. secretary, seconded, and the motion was agreed to.

The ordinary fortnightly meeting was subsequently held.

The minutes and nominations having been read, Messrs. H. C. W. Dod and J. A. Maxwell-Stirling were elected members.

On the motion of Mr. H. P. G. Maule, hon. secretary, a vote of thanks was accorded to Mr. Dixon Butler for allowing a party of members to visit the Cannon-row Police-station on the 22nd ult.

New Premises Fund.

The Chairman said that the following additional donations to the New Premises Fund had been received, *i.e.*, The Worshipful Company of Clothworkers, 50*l*.; Messrs. J. T. Christopher, 10*l*. 10s.; C. Harrison Townsend, 10*l*. 10s.; Louis Ambler, 5*l*. 5s.; A. M. Torrance, 5*l*. 5s.; C. F. Longden, 5*l*.; H. Longden, 5*l*.; F. Lishman, 3*l*.; R. W. Collier, 2*l*. 2s.; C. Dunch, 2*l*. 2s.; E. W. Lees, 2*l*. 2s.; A. W. Papworth, 2*l*. 2s.; and J. D. Slater, 1*l*. 1s. The total amount so far received amounts to 4,042*l*.

On the motion of the Chairman a hearty vote of thanks was accorded to the Worshipful Company of Clothworkers for their donation.

The Chairman announced that the Elementary Water-colour class had commenced and that as there were several vacancies, the secretary would be glad to have the names of members who wished to join.

He also announced that the Day School Summer term would commence on April 14, the Sketching and Measuring Class on April 15, and the Plane and Solid Geometry Class on the 24th inst.

Mr. Balfour announced the following donations to the Library:—"Gas and Gas Fittings," *Builder* Student Series, presented by the publishers; "Suggestions as to the Planning of Poor Law Buildings," by P. Gordon Smith, presented by the publishers, Messrs. Knight & Co.

The House List.

The Chairman read the House List, as follows:—

President, Mr. H. T. Hare.

Vice-Presidents, Messrs. W. A. Pite and L. Ambler.

Committee: Messrs. F. D. Clapham, Hon. A. McGarel Hogg, Arnold Mitchell, G. H. F. Prynne, W. H. Raffles, A. B. Thomas, H. Tanner, jun., F. C. Elder, R. H. Weymouth, E. H. Sim, E. Guy Dawber, G. B. Carvill, W. H. Seth-Smith, and W. J. Tapper.

Hon. Librarian, Mr. J. MacLaren Ross.
Hon. Treasurer, Mr. Francis Hooper.
Hon. Secretaries: Messrs. R. S. Balfour and H. P. G. Maule.
Hon. Solicitor, Mr. W. H. Jamieson.
Hon. Assistant Librarians: Messrs. W. A. S. Pettit and G. H. Lovegrove.

The Chairman said that the gentlemen whose names he had read would be nominated at the next meeting, when any two members would be entitled to make additional nominations.

The Preservation of Ancient Buildings.

Mr. W. D. Caröe then read the following paper:—

I fear my selection may be of too antiquated and archæological a subject to interest the very latter-day architect who works in up-to-date styles, and who is apt to be indoctrinated with the view that in architecture archæology has no proper place, but is merely a curb upon his rational (or irrational) imaginings.

I confess that I approach my task with some misgiving, but if I have seemed to you on your first thought to be asking your attention to only the dry bones of architecture, I shall do my best to suggest to you—certainly by inference if not directly—that these are no dry bones at all, but that there lies within the scope of what we are about to consider many a pungent thought for each of us; and that as there is no more difficult, thorny, and responsible branch of our many-sided calling, so there is none more absorbing or interesting if approached in the true spirit, or more valuable in its object lessons and training.

To the man of sympathy and imagination it is a real delight to watch the history of an ancient building unfold itself little by little—to discover that the greater his learning, just so much the more will it whisper to him its secrets. True it is that much knowledge and more imagination are needed to invest this branch of our craft with its full significance; equally true also that imagination must not be permitted to outstrip knowledge. We owe much of ever fresh interest to the realisation, late in the centuries though it has come to us, that in every piece of wrought stone or wood, almost in every brick, may be hidden some definite history of the past, of its art or lack of it; some tale of the manner of men our forbears were, at any period, in any locality. Without this knowledge, derived from man's handiwork, history may be—has been—written awry. With it, evidences derived from documents acquire a double value. The two sources are mutually reflexive—taken together may become luminous. And it is part of our business as architects, to *preserve* this one, which is complimentary to the written record. It has come to be recognised all too late that such preservation is a deep and difficult science, which is undermined with pitfalls.

My endeavour shall be to crystallise its somewhat indeterminate ethics into a form which, I would fain hope, may be helpful in our practice.

The Lamp of Memory shines brightest when trimmed and lighted by John Ruskin, whose eloquent essay I commend to all, both those who have studied it in youth and perhaps put it by upon the shelf, and also our younger friends who come with freshness and enthusiasm to an absorbing subject. Such winged words as these will not weary you in the repetition. Speaking of memory, he says:—

"Seven Lamps," p. 178: "It is as the centralisation and protectress of this sacred influence that architecture is to be regarded by us with the most serious thought. We may live without her and worship without her, but we cannot remember without her."

Or again: "If there is any joy in the thought of being remembered hereafter which can give strength to present exertion, or patience to present endurance, there are two duties respecting national architecture whose importance it is impossible to overrate—the first, to render the architecture of the day historical; and the second, to preserve as its most precious of inheritances, that of past ages."

Again: "We, as we live and work, are to be always thinking of those who are to come after us; that what we do may be serviceable as far as we can make it for them as well as for ourselves. Then, when we die, it is the duty of those who come after us to accept this work of ours with thanks and remembrance, not thrusting it aside or tearing it down the moment they think they have no use for it."

Such only is the spirit in which we must seize upon our difficult task. The semblance of any other, and, above all, any lurking suspicion of lucre, and the word may be passed at once that we are not fit for it. Here, then, we have the very marrow of the subject in the words of a master of impressive language. Restoration, Reparation, Preservation, Protection, call it what you will, this is our task and none other, to save the past for the future, to hand down intact, if may be, to posterity, what has been bequeathed to us.

Now, I have already indicated that the subject is, as the centuries go, a new one. In Ruskin's sense, in the sense in which (I hope) it appeals to us all, it was to the ancients quite unknown—except in relation to literature. As to our Mediæval forefathers, although there are a few definite instances where ancient work was preserved, either for its sanctity, or for practical reasons, or for glorification, they were, as you all know, the most impenitent sinners. They implicitly believed—and, generally, not without good reason—in their ability at any moment to do something better than what they found, however beautiful.

The eighth Henry's respect for antiquity I need not call to your mind; and yet the very destruction wrought by him and his assassins seems, through reaction, to have sown the seeds of a reverence, which, fructified again by the depredations of Oliver Cromwell and his Puritans, became first a feeble sapling, but in these latter days has grown strong (I will not say quite healthy), and appeals more or less sentimentally to most men of culture and attainment. It has, in fact, become a cult, or, indeed, two cults. The one of Restoration, which, in the honest hopes of preservation or revival, has—unwittingly, no doubt, but no less ignorantly and ruthlessly—destroyed; the other of Preservation, which has, again by the force of reaction, become a fetish—a species of fanaticism—often so wanton and uncontrolled as to set men's faces against a great and good cause, at times inventive of schemes silly-seeming to the man of plain sense.

The Cambridge Camden Society did much to foster those principles of restoration which consist mainly in the would-be recovery of more ancient forms at the expense of later. Sir Gilbert Scott enunciated some wise principles in his eloquent and touching appeal for conservative restoration, and abjured the same principles steadfastly upon the many occasions when our greatest historical buildings fell into his hands—not do I think for one moment consciously or wilfully. But one of the first warnings in carrying out this fascinating work in actual practice will be to work steadfastly upon the curb. As years advance, and opportunities increase, it becomes more and more imperative to draw the rein tighter. The temptation to attempt the reconstruction of the past—restoration, instead of preservation—can grow like a fungus, as it did with Scott, and plunged a great and deserved reputation in the dust.

We may take another warning from our neighbours abroad. In France and Germany, and in Italy also (although there the fortunately growing influence of Signor Commendatore Boni has helped to stay the regrettable practices in vogue), the idea that the past may be preserved by its wholesale destruction, and the reconstruction in its place of the would-be past most pleasing to the fancy of the reconstructor, and the tendency to depreciate the less in favour of the more interesting history, and to sacrifice the evidences of the one in favour of the other, have gone far to wipe off the slate the great historical buildings as such. They have in the process been largely transferred to the pages of erudite monographs, the actual buildings having become cast-iron echoes of themselves.

Viollet-le-Duc deliberately sets before himself the goal of recovering the supposed form of a building at that precise period of its existence which he pedantically elects to be the most beautiful or most interesting or both. All the overlying evidences of other periods are to give way; and when those evidences sought are not found, they may be manufactured in the form in which the eminent professor thinks, in his erudition, most probable and harmonious.

This phase has its roots in a species of unholy pride, the refusal to acknowledge that any past century could do work as good as, or better than, the present.

I can give no better illustration than the reconstruction of Leon Cathedral in Spain. The façades, our guide-book tells us with satisfaction, "have been purged of their Renaissance disfigurements." Observe the inanity of the "Gothic" which has taken their place, although it is fair to say that under the direction of Señor Madrazo, the architect, some clever under-building has been accomplished to the arcades and other parts which were seriously jeopardised by the great Lisbon earthquake and subsequent neglect. But there is great prodigality of new stone in all these works.

The restoration of the walls of Carcassonne, upon which, under Le-Duc, the French Government has wasted untold thousands, and aided by which Le-Duc was able to lay before us with a scholarly intuition and definiteness worthy of all praise, the history and science of Romanesque and Mediæval fortification, forms a striking, not to say ludicrous, example of the failure of the method, even in erudite hands. The further works now in progress in which Le-Duc's methods are being carried forward, are really more comical than words can express. One is indeed tempted to ask if these men are quite sane. All over Europe works of a similar kind have been during the last thirty years, and still are, in active progress, and yet the modern spirit of a newly emancipated continent is such that these gross misprisions of antiquity are warmly approved, and mediæval travesties are too often regarded as glorious national monuments.

If I am asked for examples, they occur in every town, almost in every village. Augouleme, with hardly an ancient stone left undisturbed; Leon largely rebuilt; Upsala a modern building; St. Mark's, Venice, externally an engineer's construction; S. Front, Perigueux, with the bottom knocked out of its remarkable history; Albi restored, and now being re-restored apparently for the sole cause that the French Government does not know what to do with its wealth; that marvellous courtyard of St. Gregorio, at Valladolid, wrecked and rebuilt, and all its wondrous carvings scraped up into soapy whiteness; the delightful sculpture of Wisby being recarved because the architect (he told me so himself) thinks they are archaic and the heads too big for the bodies, and that he can draw them better, brilliant draughtsman as he undoubtedly is; Trondhjem and Stavanger new cut, Frederiksborgslot restored by a brewer like unto a public bar. And in Germany! The restorations made in Germany are more appalling than words can tell. I know not where to begin or where to stop in referring to them.

I am not exempting our own country. We have suffered grievously—irrevocably—and not the least from the curious revivalist heresy that the art of architecture stopped short in the year of grace 1534. We are still suffering, but fortunately a sounder sense of proportion, which I am here to advocate to-night, the sense of preservation, is gradually making headway among us, and here and there some remnants are left to be saved almost at the eleventh hour, to show us and the future what has been wrecked under the hungry wave of restoration.

In passing, I refer to one other "grim" one-man school of destructive restoration, which is fortunately individual and unique—the brutal, ignorant, conceited, self-opinionated "school" of Lord Grimthorpe. It has been as much a disgrace to the century and the Church which permitted it, as to the man who has had the effrontery to direct and to pay for it. Silence is perhaps most meet where memory is pain.

Parallel with this, but unfortunately on a wider plane, is the rapid destruction of ancient monuments to make way for so-called modern improvements, a process for which I venture to think our successors will curse us pretty roundly. We witnessed only lately how our County Council, priding itself on its enlightenment and supporting a Committee for the registration of ancient monuments, nevertheless disgracefully destroyed one of the few remnants of the East End, that desert of modern dinginess. I refer to Tudor House, of course, which had to make way for an extra bit of asphalte.

But Preservation, too, has its extreme forms which, like all extremes, carry their dangers to a good cause; and in antithesis to the extreme continental practice of restoration, let us consider our own extreme cult of preservation, which carries something of fanaticism with it.

But I should like to make it quite clear that I am most fully in sympathy with the primary

tenets of the Society for the Protection of Ancient Buildings. No one recognises more fully the need there was for some earnest and tenacious effort to stay the work of unreasoning and ruthless restoration, which has already (always with the very best intentions) destroyed so much of the choicest beauties and deepest interests we had been fortunate enough to inherit from our predecessors.

But agreeing thus heartily with the aims and tenets of the society, I must not be held to endorse all its methods. These seem not infrequently to be directed to defeat its best objects—sometimes by exaggeration—sometimes even by childishness of statement—sometimes by the use of language seemingly calculated to annoy (the Society is an adept in the use of pinpricks), too often by carelessness or error, which come ill from those who affect infallibility of judgment. It may be said, indeed, against the Society that while it is the only organised upholder of a much-needed propaganda, it not infrequently goes far to set those who might be and would be earnest supporters against the good cause, which many of us have a right to claim as our own, with an enthusiasm as deep as the Society's most ardent member.

Now, I commend the various advisatory leaflets issued by the Society, with special mention of Professor Church's recent admirable excursus upon wall paintings. They are generally sound and practical and instructive. But there will not be found very succinctly laid down the following somewhat inchoate and elusive principles which I have endeavoured to cull briefly from some examples executed and statements made by members of the Society :—

1. As a general axiom, an ancient building is to be considered as a gem in a glass case. To touch or disturb it in any manner whatever is an act of sacrilege (a sentiment with which I, for one, heartily concur).

2. Nevertheless, you may whitewash it to any extent. You may rake out the inside of the walls, and substitute blue brick for old core without stint. You may rebuild or finish an interior with blue bricks, or you may patch up cracks externally with blue bricks.

3. But you may not patch them up with the original material of which the wall is built. That is counterfeit.

4. When you come to tracery, however, you may repair that in stone, and make such a copy of the old as you may be capable of. That, somehow, is not counterfeit.

5. You must underpin on all possible occasions.

6. And just as you may use whitewash you may also use plaster. You may, indeed, "restore" ancient plaster in the fullest sense of the obnoxious word. In the eyes of the Society there is some special virtue in plaster as a mediæval building material, which claims for it a treatment more exacting than you might accord to highly wrought stone or timber, let us say.

7. Finally, the Society for the Protection of Ancient Buildings may advertise you and itself, or you may advertise the Society for the Protection of Ancient Buildings and yourself in the Press, or on quaintly lettered or ill-spelt tablets—if, that is, you are acting under its ægis.

8. But woe betide you if you attempt anything whatever in any direction in connexion with an old building without such imprimatur.

Here, then, I have briefly referred to the methods of the extreme schools on either side. The first is purely destructive, and is fraught with disaster to the true preservation of antiquity. It has given us mainly blight and December leaves. The second is apt to destroy in its strenuous endeavour to do otherwise than restore in the extreme sense in which it rightly believes the first destroys. It creates in place a reactive method, apt to impress itself in illogical fads, as for instance when it whitewashes Exeter Guildhall, and is quite ready, we have been informed, to whitewash Westminster Abbey. You must make what logic you can out of the precepts I have sketched for you above.

Now I believe that wisdom lies once more in the *Via Media*.

If the tower and spire of Salisbury Cathedral were to fall to-morrow (from which catastrophe we have lately been saved by a restoration in defiance of every precept of the S. P. A. B., but against which no word of criticism was breathed), will any one say that we should do wrong in rebuilding it on the old model, and all that it destroyed in its collapse? I certainly should recognise such a reconstruction as a legitimate "counterfeit." And if a whole, why not also a part? It is almost impossible to deceive the future by a makebelieve of the past; and if there be any fear, a recorded date will easily put that to right; and the better the old methods are understood and adopted and the old feeling expressed, the more harmonious and satisfactory will the effect be. Too many windy words have been wasted over so-called "counterfeits." Do we blame the Perpendicular builders of Westminster Abbey and accuse them of counterfeit because they imitated the Early Decorated style, and in some places very cleverly? Or do we call in question Mr. Micklethwaite's work, daily growing at the West End? It is, as I understand, a necessitous reproduction of ancient forms.

Now there is one skilful and many an unskilful way of treating each problem which comes before us, and there are many methods of preservation applicable only to individual instances. I can only here deal with the subject in its general aspect, and thus, there are two primary principles which govern all cases :—1. In an ancient building, not a stick nor a stone shall be moved if a reason—a sufficient reason—is forthcoming to keep it where and how we find it. 2. When the work is done, no modern workman's mark shall be seen wherever such can be avoided.

I do not mean to say that the condition of a building may not have been such—cumbered perhaps with a restoration of fifty years ago, or later—that even a transformation of internal appearance may not have been a necessity, but its ancient work will all look reverently ancient, although scarred perhaps by past inroads, not by ours; and there will be nothing new inserted for newness sake, so that the fervent antiquary on entering may feel that all is genuine and tells a true tale, and that such as is new is legitimately—necessarily—so, and such as is old untouched.

And what is the new to be? This is involved in the wider question, "How far is the ancient to give way to modern requirements?" Primarily the answer is, and this must be our third principle, "It is *not* to give way."

We can and must sometimes create *de novo* to suit modern needs. We can also in ancient work reveal, but much more easily can we destroy. We cannot create what the past has bequeathed. Touch it and it may be gone for ever. Thus our third principle is a vital one.

Nevertheless, common-sense interposes and says that a building whose life, so to speak, is active must be suited to the needs of the day, within reasonable bounds. But I would ask you to bear in mind steadfastly that the tendency of to-day is to do too much, and you will never err on the wrong side if in the matter of adaptation (I am not now speaking of stability) you do too little. You *cannot* preserve too much.

It may be convenient at this stage, after the mention of these three guiding principles, to subdivide the buildings with which we are called upon to deal into three classes :—

(1.) Ancient buildings which have continued in the use for which they were erected up to the present, and which it is desired to preserve for the same use. Cathedrals and churches chiefly, detached monuments, some mansions, and schools.

(2.) Ancient buildings which have gone out of use, but which it is desired to recover to their old use or adapt to a new one, or incorporate into the midst of new buildings. Old manor houses become farms, or farms become cottages, or ancient school buildings incorporated into a modern growth.

(3.) Ruins of ancient buildings which it is desired to preserve as ruins, and to prevent from further decay.

Now, while the same principles will govern in all divisions, the practice in each will vary somewhat. In applying them, let me recapitulate succinctly the three principles already enunciated :—

(1.) Nothing shall be touched which can be left alone.

(2.) We must efface our own work.

(3.) Ancient work shall not give way to modern needs.

These are primary precepts. Hardly in any case will it be possible, unfortunately, to fulfil them; but according to the measure of our success in doing so in our work will that work be itself successful.

A fourth general principle applicable to all cases has to be stated, although it goes as a matter of course.

(4.) Our first efforts will be directed to the building's stability.

A fifth will, perhaps, not be so generally accepted in regard to all three divisions; it is

(5.) The beauty of an ancient building is not to be marred by inharmonious accessories for any purpose whatever.

The proposal, for instance, once made to build great brick buttresses to prop up the west front of Peterborough Cathedral I regard as simply brutal and an insult to the designers of that remarkable work.

I cannot subscribe to Ruskin's precept, "Do not care about the unsightliness of the aid," although I admit its argumentative effectiveness.

The sixth and last general principle will be

(6.) In all cases ivy must be removed and destroyed.

Now let us deal with our three classes of buildings :—

1. Ancient buildings in active use.

I confine myself for the nonce to churches. Our third principle will be the most difficult to apply here; clearly its application will vary with individual cases, each one of which must be dealt with on its merits. I admit the difficulties, but would plead for the most stringent application of this principle. There are, unhappily, but few churches remaining in which modern needs have not been allowed to wipe out ancient evidences—very dear to us if we could only now recover them. Our efforts in these latter days will be often directed to restoring away the restorations of the last fifty years, as the late Archbishop of Canterbury once phrased it. But we are frequently called upon to adapt, and our general efforts should be directed to doing this without interfering with the original lines of the building. There are three points where we may be tempted to break the rule :—

(*a*) The levels of the floors, specially of the chancel floor.

(*b*) The provision of vestry accommodation.

(*c*) The disposition of the organ.

As regards (*a*) *Floor Levels*.—More frequently than is generally thought the chancel was not raised above the nave, and the mere desire to elevate the chancel should not be permitted to disturb the original proportions of the building.

The same must be said of the frequent wish to elevate the altar. This is specially unfortunate if there be a low-silled east window. Be persistent in resisting such importunities. The level of the piscina will generally be a good guide.

(*b*) *Vestries*.—Vestry accommodation is an undoubted need of these days. All I would do is to urge the finding of some space within the building which may be devoted, by screening or otherwise, to the purpose, if this be in any way possible, before committing yourself to extension. The tower space may frequently be successfully thus utilised. But if vestries have to be built, be most careful to choose a position in which the new work will not interfere with ancient points of interest or beauty of grouping. A detached building connected by a covered cloister may be better than an integral addition to the church.

(*c*) *Organ Space*.—The choice of organ space is the direst difficulty in an ancient edifice, and demands all our care. It must be confessed that the west-end position has musical difficulties in its working in connexion with our English requirement of a choir in the choir stalls. There are cases in which it is impracticable, absolutely. If it can be adopted musically without destroying a west window, then by all means adopt it. But we are asked frequently to throw out an organ place from the chancel, and I am bound to admit that there is sometimes no other possible alternative. It may be necessary to abrogate our second and third principles. But I would have the matter weighed many times before taking the step, and if there are any unique features in the part of the building you would destroy, refuse to do it. There is much room for the exercise of ingenuity in connexion with the disposition of the organ, and there are really many unexpected places which courage will suggest. At Stratford-on-Avon Mr. Bodley solved the problem by placing the instrument over the western arch of the central tower. It is full of interest, and certainly if ever removed the building will have suffered no harm. Where there are transepts our difficulties may be minimised, yet I know a

case (at Clevedon Old Church) where the beautiful transept, wherein Arthur Hallam is commemorated, is absolutely ruined by a huge and blatant organ, set down regardless of surroundings. To block up the chancel, especially if it be narrow, with an instrument resting on the floor and projecting from the wall is fatal. Even in a great church the ill effect of this treatment is patent as in the restored Abbey of Dunblane or at Boston. It must be remembered that few of our churches were built for organs, and the best we can do is a makeshift. If our difficulties be great they are diminished by having to provide for a small instrument, and perseverance and tact are all I can prescribe, together with that resoluteness in defence of the old, which will carry weight with most of those who have charge of our ancient monuments.

To remove the organ from the organ screen, where such exists, in order to open out a vista or for any practical purpose, to take down the rood screen (and to remove it to the Vicarage Hall, as I have known done) in order to open out the chancel, to remove the interesting steps of a Norfolk font, because they occupied too much space, are types of deeds we mention only to deplore.

But to pass on to the wider question of structural stability. First of all, see to your foundations. Remarkable although their work was above ground, the Mediævalists were sorry scampers in the matter of foundations, and they seemed to exercise no forethought as to the weight they proposed to put upon them. It follows that underpinning is a frequent necessity. But remember that fissures may come from bad bedding or bad building above ground as well as from bad foundations. In towers, bell-ringing is a frequent cause, and if the wall be weak from any of these causes, and the underpinning unnecessary, you incur much risk and may do much damage by attempting it. I have been pressed to underpin the piers of a church by my friends the Society because they were an inch or two out of the upright, when they certainly had never moved for 500 years, and an examination showed their foundations to be excellent.

Towards such importunity my advice is to do nothing but look pleasant.

But having satisfied yourself about the foundations, the next thing is to repair the cracks and consolidate the core of the walls. I need hardly mention the utility of liquid grout in this connection, but must warn you not to use fresh cement. With a little care and skill grout may be employed so that no evidences of fracture need show. Reparation by blue bricks is pure faddism. Why, at the same and for all time, display our own lack of skill and a building's sore? But if you will do so, my advice is not to commemorate it by a tablet.

We have often to deal with leaning walls. The idea that a wall is dangerous or necessarily going to fall because it leans is an absolute, if popular, fallacy. The mechanics of the question are simple enough. Remove all lateral pressure and the wall will not fall until the line of the centre of gravity passes outside the base. If the wall be buttressed, there is a still greater angle of safety. Our deductions will therefore be:—

1. Remove lateral roof pressure.
2. Consolidate and if necessary spread your foundations.
3. Spread your buttresses, or add new ones on a homogeneous foundation.
4. Let rebuilding be your last resort.

The disturbance of an ancient work and its architectural features by taking down and rebuilding is almost irreparable. Of course it is frequently possible to set a wall upright by jacks, but the operation is costly, and demands the greatest care if the windows or other architectural features are dilapidated or fragile.

Let us pass to the repair of stonework. We are now upon debateable ground. A beautiful work of art has been erected out of a friable stone, or, perhaps, the pestiferous atmosphere created by modern civilisation has been brought to play upon a stone which would stand quite well in the purer air of barbarism. The decay wrought has very likely added to the beauty of the building by softening its hard edges and giving, sometimes that colour, sometimes that romance and glamour which are associated with weatherworn age. The building may, indeed, have reached the acme of its beauty; and yet the point may have been reached when disintegration will be rapid. A few years and the original touch of the mason's chisel will have vanished, together with all record of the contours he created. Is all record of these to be lost for ever to posterity? If the decay is such as to endanger the stability of the structure, is such renewal as may be necessary to take the form of the original, or must such imitative work be rigidly denied to us as a fraudulent proceeding?

The panacea for such decay as I have described, advocated by the Protection Society, is whitewash. The panacea of the restorer is, of course, wholesale reconstruction.

Now, a committee of chemical experts and architects has been sitting for a prolonged period in the endeavour to discover some process by which the unfortunate decay in the stonework of Westminster Abbey may be arrested.

Where such decay has taken place in stones, of which the chief constituent is carbonate of lime, and where the cause is the sulphurous emanations from the modern town atmosphere, which convert carbonate of lime into gypsum, a soluble substance, an arresting remedy has been found in Baryta-water (hydrate of Baryta). You may see the effect inside the chapter house, which has been dealt with under Professor Church's able direction. Unfortunately, in other places, where such a remedy was most needed, it proved a disappointment, and it is evident that it can be used only with the greatest circumspection. But the committee's report will be awaited with interest, specially if it determines for us the value of whitewash. If there are any of you who have been bitten by the craze for it, I ask you to hold your hand. To avoid prejudice against it, it is euphemistically dubbed "limewash" by its advocates. It appears to me in this connexion that the special glory of an ancient building lies in the colour and in the texture of surface, which time alone confers. Place a fresh surface—a new film over it all—and you may acquire a different beauty—a new beauty—but it is only at the expense of the loss of the old. The texture and with it the sentiment have gone.

The argument is frequently used that as all or most old buildings were limewashed to make a surface for colour painting, to rewash them is legitimate. But surely this becomes restoration in the very sense in which it should be most obnoxious to the anti-restorer. The argument assumes also that a building is in its most-to-be-desired form when in the tentative state of preparation for painting, that the glory which even the greatest builders of old could not give, and which time alone can give to architecture, is as naught to be regarded. The cult of whitewash on old buildings is clearly not to be encouraged, gentlemen, and there is the truth of it. I cling to the fifth principle I have enunciated.

And what of the wholesale restoration? That, to my mind, is equally to be reprehended, and I adhere definitely to my precept No. 1. The stone, decayed though it be, which the builder laid there—be it blackened by soot or glorified by Nature's paint-brush—has an intrinsic value and interest which can be given to no new stone which replaces it. I will never be a party to restoration for restoration's sake in the abstract. And yet where structural necessity demands it, the refusal to make the best record which can be made of the ancient work, and the demand that something different which will tell its own story shall be put in its place, seems to me foolish and pedantic to a degree. Learn the true spirit of the old work by all the attention and assiduity you can command; respect it; work in it, if so be unfortunately you must; make a record of your copy; date every stone, or insert a recording inscription; but, believe me, you are fortunate—exceptional—if your new work will ever be mistaken for the old, or need recording otherwise than by its own existence.

The restorations which are the really sad ones, as they are also the most numerous, are those in which the keynote seems to have been the desire for newness; an unfeeling travesty of the ancient work has been substituted for it by some mechanician blind to the glory with which time has dressed it, ignorant of the spirit he has to deal with. It follows that he who is to be best trusted to deal with an ancient building is he who is most in sympathy with its spirit. The utter folly of the advocacy of the engineer as restorer, just because he has neither sympathy nor knowledge, stands apparent.

I should always myself advocate the employment of two architects in collaboration on any work of reparation, so that rashness or error or ignorance might be curbed in their effects. One of these should be a man who has proved his fitness, for no monument should be put in the hands of him who has to learn his methods upon it. But in any case I should like to see constituted an authoritative committee to whom the younger man—and his senior, too, for the matter of that—might come for the resolution, free of cost, of his doubts and difficulties. I believe there are many whose sympathies and abilities lie in this direction who would willingly give their time to such a duty. The organisation of the Society for the Protection of Ancient Buildings already exists, and, with my sympathy for its aims and objects, I would like to have suggested that body to fulfil the rôle. But can we urge confidence in a society which has not restrained itself in the past from fads and fictions, and whose policy and procedure have gained a notorious reputation?

I must hark back to attempt an answer to the query as to whether we owe it as a duty to posterity to preserve a record of the ancient detail of a decaying building otherwise than on paper; in other words, shall we let all features decay until all trace of detail is lost? The time may come when the stone decay is such that structural renewal is a necessity. Is posterity then to be unable to recover the form if not the actuality of what once existed? Dilapidation may be so advanced and rapid that either destruction or renewal stare us in the face. It may be our regrettable duty to preserve the record in stone of the form at least of some small portion of each variety of work, where necessity demands, even at the expense of the immediate appearance of the rest.

But you may of necessity sometimes be called upon to add something new to an ancient edifice to take the place of what was once a part and parcel of its structure. Every remnant of a blocked-up window or doorway may be lost when it is wanted again on practical grounds, or a new buttress, perhaps, may be needed to stay a tottering wall. Then, I say, be reserved, be scholarly, be harmonious in what you design; be individual, but do not let your individuality be insane. I ask you again to observe the fifth principle.

Now the principles I have suggested for stonework apply generally to woodwork. Destruction and decay in woodwork is chiefly due to the original use of sappy timber. It takes between thirty and forty years for sappy oak to disintegrate, and it is well to note that the decay of sap-wood is not like dry-rot; it does not injure or extend to the sound wood in immediate contact with itself. Old timbers partially decayed by sap are not to be abandoned therefore for new (often pitch pine), but to be scarfed by sound oak, and I do not hesitate to say that there are few ancient roofs, I care not how dilapidated, which could not have been repaired thus *in situ*, that is without even removing the timbers to the ground, if sufficient skill and knowledge had only been at hand for the process.

I show you herewith a view of the beautiful roof of Gedney, Lincolnshire. That roof was in the last stages of decay and dilapidation. The walls were pushed out and cracked in all directions. It was repaired without moving a single timber from its place.

I can conceive no greater stigma attaching to an architect than that he finds it necessary to replace an old roof with a new one because the old one is seriously decayed.

Another point often comes before us: the dealing with an interior where modern three-coat plaster work ¾ in. to 1 in. thick and more, has smothered the contours of the walls and overridden or absorbed the coin stones of the windows and other valuable features. I have even known a case where the not unusual thirteenth-century internal batter of the walls has been straightened out by plaster reaching a thickness of 5 in. at the top and absorbing a stone cornice. This must come away, of course. Obviously, the consistent anti-restoration course would be to put in its place something which never existed before—to point up the rubble, for instance. But no, not so the Society in this case, and I heartily agree with it. You must replaster in a thin coat showing the irregularities of the walling. Your coat must not be smoothed down with a straight-edge. My custom is to put it on with a float and to brush it over with a big, stiff, flat brush about ten minutes after it is done. A satisfactory texture

is thus secured, and in architecture it cannot be too often repeated, texture is all-important.

In your windows recollect the vast importance of iron stanchions and saddle-bars, and on no pretext allow the ancient ones which you find to be done away with. The glass painter, with too few exceptions, is the chief sinner in this matter. He has done our old churches inestimable damage, both by most of his wares and his application of them.

But the old ironwork has frequently itself done damage, and care must be used. If it has rusted in the stone, it should be temporarily removed, the rust filed away, and while the surface is bright it should be reset in cement. Paint it then with two good coats of red oxide before it has its two final coats of black, and it will not give trouble again, but act as a permanent stay to the mullions and tracery.

Stand out as far as you can against wire protecting guards to stained glass windows. Try to convince your clients of the advantage of a few fortuitous leads by way of repair, after the inroads of an all too infrequently opportune schoolboy's stone. If we could only get five-sixths of the modern stained glass windows throughout the world bestoned, what a gain it would be to our churches, and to our peace. I find that old wire guards, with their suggestion of carpenter's Gothic, there at least not misplaced, make excellent chicken runs for the parsonage garden. Equally objectionable is the plating of windows with sheets of glass —a system which mars so conspicuously York Minster, and suggests so forcibly diaconal blindness.

A word further of warning, and I have done on this head. If you find cracks in your tower, look to your bell-frame. A loose bell-frame is a too-frequent source of mischief to the tower, but I do not thereby readily accept the bell-hanger's quite certain statement that an old bell-frame cannot be repaired, but must give way *in toto* to new. There are some remarkable ancient bell-frames in the country which it would be veritable vandalism to destroy, as, for instance, the one at Pittington, near Durham.

Now let us close the consideration of churches by briefly applying these principles to a hypothetical case. You are called upon to "restore" (that is the invariable word used) an ancient church. You will, in the first place, be wise to ascertain the general views of your employers—the incumbent, the wardens, and probably a restoration committee. You will have to adapt yourself to many divergent circumstances.

You may meet genuine ecclesiologists and antiquaries, whose knowledge of the fabric and its history is ample and unique. To work with such is a genuine source of delight.

Or you may have to do with enthusiasts in different degrees; those who would make the building conform to the most advanced modern ideas of church planning, careless how such requirements fit in with its past. Or there is the parson, full of enthusiasm and high purpose, who tells us his aims are "Gothic" (which, I warn you, may mean a hankering after somebody's ecclesiastical catalogue). In such case I counsel tactful agreement, with a silent girding on of your armour of stedfastness.

Or again, you will too frequently meet those who have a merely perfunctory regard for the beauties and history of the building, and whose only idea is to make it serve at the least possible cost; and finally those—comparable almost with the first I have mentioned—who will loyally do their utmost to second your efforts and adopt your advice. Of these, let me add, there are many, but never enough.

In all cases your principles will be constant, but as your tactfulness in pressing them, so will your success be in attainment.

I am reminded of a charming and worthy vicar whose first request to me was to spare him from "twaddle" about the history of his church. He cared not for history, all he wanted was to make it stable and useful, at the least cost. I believe I satisfied his demands in every particular. I took care to observe the historical demands made upon me also, for they happened to be the key of the situation, and I am told that he now poses as the local archæologist and expounds the history of his church to interested visitors.

Now, I assume, of course, your accurate general knowledge of dates. You will search out cautiously and stedfastly the growth of the building from its earliest days, not only the main dates, which are probably easy enough, but its gradual growth and change. Observe, first of all, the plinths; look carefully at their junctions in internal angles and their respective levels. You may find nave and chancel relatively of the same date, but the plinth junction may tell you which was erected first. Remember always that the doing away with, or the renewal of, a single stone in such a position may wipe out for ever the evidences of the building's development. Then look carefully for any straight joints in walls, which point with certainty to a change of plan, and note very exactly any differences of masonry. Then see if the windows are original or subsequent insertions. Our forefathers were skilful, indeed, at these insertions, whether of windows or whole arcades, and your most careful scrutiny will sometimes be wanted. Discover also old levels of floors and of ground. In excavating for the latter look for any pieces of old leaded glass. I once discovered the missing link of a curious and interesting traceried window by the form of glass of an aperture buried in the earth opposite the window, which had been partially destroyed and built up. These are a few cursory ideas upon what may seem small, but are fertile sources of great help in the development of a preservation scheme.

By a careful examination of roof timbers I have seen the recovery, without the slightest doubt, of the whole form of an intricate roof of varying dates, and nearly all its parts, which had been mixed up indiscriminately in an eighteenth-century reconstruction, of quite a different form.

Be careful of pitfalls. Remember that you may not have been the first called upon to work your will upon the building. There were restorers even in the early centuries, and many a history has been wiped out by endeavouring to make subsequent restorations into original works.

I know of two curious columns in a fine church which, differing from the rest of an obvious Norman arcade, are fondly regarded and honoured locally as the last remnant of the Anglo-Saxon fabric. They are clever insertions of the fifteenth century. Difficult elucidation will often be overcome by a recognition of subsequent change.

Then you have the difficulty to face—what builder are you to employ? Almost to a certainty your committee will want competition among local firms. Now it is one of the misfortunes of modern methods that the architect cannot spend his whole time upon each of his works. We have to accept that inevitable difficulty. And he has perforce to do his work through the fingers of the artisan. In the country the local builder builds cottages, repairs the squire's mansion, and executes the periodical dilapidations at the parsonage, and generally does the odd jobbing of the district, with some drainage thrown in. I respect him and like to employ him in his own line. Where can he and his men gain the intricate knowledge to tackle the historical preservation of an ancient edifice, where tenderness and knowledge in every touch are essential? There are fortunately, though few and far between, builders who have made such work a hobby and brought up intelligent foremen and workmen to be experts in it. To such I acknowledge my indebtedness. Your business is to find such, to meet him on the spot, and arrange with him a fair price for the work. The damage which has been done—absolutely irreparable—to our churches, by turning on the local builder and undertaker, even if he be the churchwarden, is immense. With the soundest views and best endeavours and instructions, the architect cannot cope with the ordinary workman's intrinsic ignorance.

Here is one of the many pitfalls. I pray you take warning and avoid. Competition in such work is pure madness.

But having completed your difficult undertaking and preserved your fabric in a thoroughly reverent spirit, you are called upon to advise as to its furnishings. Let me beg of you another form of preservation. Preserve it from the garish tile floor, the meretricious brass lectern and all the blatant brasswork, the cathedral glass in varied tints, the pitch pine stalls and seats, and all those other elements of the taste which have distinguished the Victorian era, and are the shame of the age of church restoration. Preserve it also, or do all you can to persuade those in authority to preserve it, from the wiles and wares of the church furnisher and the indifferent glass painter—specially such as he from Munich—and the organ cases of the organ builder. Do you not recognise the difficulty of your task?

The general tenour of what I have said will apply to the second class of buildings.

I have already referred to the restoration to use of the ruined Abbey of Dunblane. This was a very exceptional case, and I cannot say that the result altogether makes one anxious of repeating the process in other possible cases. At the same time I hardly think it can be said that such work is to be deprecated altogether, if it be done with reserve and if it tends to the permanent preservation of the building. The danger comes if there be an inordinate and too likely desire to make all too spick and span, and to replace weather-worn stones, which may still be stable enough, with new, in the desire for neatness. The lovely colour the arcades have gained at Dunblane by exposure, give them a beauty they could never have otherwise acquired, and the architect has shown great judgment in leaving them severely alone.

In the adaptation of old buildings, other than churches, there is generally still greater temptation to interfere with their antiquity in favour of modern comforts. I know an antiquary whose delight is to preserve ancient and dilapidated cottages from final ruin, and to make them once more serviceable for human needs; and it is surprising how well this can be done, and how simply and inexpensively, where the taste is at hand. Such work can, I fear, only be done for love, but I trust none of you will shirk it for love if it comes in your way.

This brings me to the third and last class of buildings. Ruins to be preserved as ruins.

I have reserved till now the sixth principle —the destruction of ivy.

Of course I shall be told that I am advocating the destruction of the picturesque, but it is not so. Quite apart from the destructive qualities of ivy—the entire concealment of architecture by any evergreen growth is merely the rendering of it valueless. It might as well be a rough brick wall, and any beauty such a combination possesses belongs to the ivy and not to the architecture.

One is reminded of the seer of Brantwood's words—"The artist who looks to the stem of the ivy instead of the shaft of the pillar is carrying out in more daring freedom the debased sculptor's choice of the hair instead of the countenance." For the artist you may substitute the general lover of the picturesque and of antiquity, who is horrified when the parasitical growth has to give way to the exposure and preservation of its victim.

Of course, in the early days after ivy destruction your building looks bare and unclad, but take heart and counsel. Nature has provided a most happy substitute, which is as harmless as it is beautiful. You may plant *ampelopsis veitchii* to any extent, the lovely light-hearted and fickle but always tender sister of the stern and solemn ivy. After two or three years of patient tending and watching the growth of a plant which has tested and likes its situation is almost phenomenal. You have the lovely daintiness of the spring leaves, the richness of the summer green, and the glory of the autumn sunsets. And when the glory has departed, all your architecture is revealed again, with the slender tendrils only adding texture to the walls.

At the highly interesting church of Westwell, near Ashford in Kent, a church where the thirteenth century groining is done in concrete, this lovely creeper has been permitted to grow over the window glass, which it loves to do. The glass is fortunately transparent. The effect is more beautiful than any modern glass painter has ever conceived, and the contrast between Nature's handiwork in glass-painting and that of man in the east window, which alone is dight with unhappy saints, is striking indeed.

I commend it to you.

First, then, in the protection of a ruin, get rid of your ivy. The thick stems should be cut at about 3 ft. distances and dressed with corrosive sublimate or any strong destructive chemical. The ivy must not be torn down from the face of the wall until it has lost its power of clinging, and should then be most carefully removed by the aid of scaffolding, and what is still more important, the aid of tender-handed and careful workmen.

You will find frequently great ivy stems growing in the very centre of the walls, disturbing the core and pressing out the ashlar. There is no other course but to take out a stone

or more and destroy it by removing all that can be reached and killing the remainder. Again, you will have, perhaps, great dead ivy stems to deal with (for even ivy fulfils in time the course of nature) which have wrapped themselves round the ruin, and can hardly be displaced without disturbance of its stones. I cannot prescribe generally for such cases. They are sometimes most difficult to meet, and I can only recommend the ample use of scaffolding and shoring. I have known cases where the removal of the ivy meant necessarily the destruction of a small feature, such as a pillar. In that case alone the parasite must be allowed to stay and continue to sustain its victim until its life is lived. Posterity must then deal with it as best it may.

Obviously the most important duty is to protect roofless walls from the inroads of rain and frost. The method adopted at Kirkstall was to carry the irregular walls up to more or less the same level and cope with flat stones, slightly weathered. This, no doubt, is practically effectual if the coping stone is good. But the sacrifice is very great. The building loses its picturesque claim as a ruin, and becomes formal at once. I cannot see that so drastic a treatment is necessary. It is quite possible to remove the soil and vegetation from the rough wall tops, and grout them in with cement, leaving their irregular contour, and it is only necessary to provide for carrying off the rain with fairly even distribution. A careful workman can do this under careful direction.

There are those who are fearful of the use of cement in connexion with old walls. Its danger consists in its improper use. It must be of the best quality and must be well aired before use, and not used too strong.

The grouting in of cracks with cement, and if necessary the pointing with cement, can also be accomplished with no damage to the hoary antiquity of a ruin.

In pointing, the generally earthy matter must be well raked out, and the cement kept well back from the face. This can be done by means of a stick. Our forefathers were generally alive to the advantages of a sufficiently wide joint to allow of this.

We come now to the difficult point of the treatment of reconstructions of an ancient building, necessary for its proper sustenance.

Occasions arise where it is absolutely necessary to reconstruct part of an arcade, an arch, or a buttress, or perhaps a vault, or some tracery. It appears to be an accepted principle, even by our keenest historic friends, that where old stones exist and their approximate position is known, they may be put back—reused. But the doctrine has been put forward and acted upon, that, although you may build part of a feature with its old stones, you may not add to their number by new stones to the same section. A system has been adopted of cutting such added mouldings to an appreciably different section; for instance, at Kirkstall rounds or beads or bowtels are cut into facets. The principles adopted are not easily read. Apparently old square forms may be replaced by new square forms. Large rounds must be replaced by facets or chamfers, but small beads may be sometimes the same as the old, and sometimes cut into facets.

Now I do not hold with this system. I protest strongly against it, for I believe it to be false in logic, as it is injurious in effect.

The architecture of the building is ruined by the frittering away of its artistic forms in facets. To the uninstructed beholder, when the time has come for the new stone to weather as the old, the difference will mean nothing, but the artist's eye will be always offended. If you are afraid of falsifying history, there are two courses. Either rebuild in rough hewn masonry, which will tell its tale, or copy the old as nearly as you can, but put a mark or date on each stone if you will leave some imperishable record of your work. It is easy enough. And believe me, when the time comes—as it will come—that enlightened views on these subjects have prevailed and are general, if you act thus, generations to come will not laugh in their sleeve at you.

Kirkstall Abbey furnishes an instance where the preservation of one of the most interesting ruins has been attempted in a thoroughly scientific spirit by an architect and antiquary who holds a foremost place in his own department. The first process was, of course, to clear away all ivy and other parasites, which made the ruin one of the most pictorially beautiful. Following this came the structural support of shaky parts, and the exclusion of water from the walls and groins, where such existed. I do not allude here to the excavations of heaped-up earth, which is a purely antiquarian pursuit, and ought to be undertaken as a matter of course in connexion with work of preservation.

The process of protecting the walls from the weather has been, as already said, to carry them up in rough mason's work to a more or less continuous level, and cope them with a flat coping.

Where architectural features, such as the external arches of the dorter windows, have been met with in the process, these have been rebuilt with narrow slabs of stone, so as not to be mistaken for ancient work. There is, however, one case where an old arch has been restored in its old form with new stone.

I have already spoken of the facetted shafts and arch moulds, where it has been necessary to renew them.

The carriage of the southern and part of the eastern side, all that remained, of the shaky central tower, was the crux. The north-west tower pier and the nave arcade pier adjoining had fallen, and, of course, the north and west tower arches with them.

The south-west tower pier had sunk, and the foundation was evidently insecure.

Mr. Micklethwaite completes the disjointed nave, and with it the north tower arch, using facetted forms where old stones are not to hand. To assist the south-west tower pier he builds up the easternmost arch of the south nave arcade and the adjoining aisle arch, and to support the broken end of the tower adopts the bold expedient of erecting a detached pier adjoining the south-west tower pier. This new pier is an oblong block of dressed masonry with chamfered edges, merging in a very architectural manner into the upper portion of the structure.

Now this is thoroughly courageous work, and all courage demands respect.

I could wish it had been possible to secure the foundation of the south-west tower pier (as would have been done if the building had been still in use), and thus allow the western tower arch to be thrown across as the northern one has been. Certainly the total result would have been more pleasing, and the security greater. I fancy, too, that Mr. Micklethwaite will readily subscribe to my sentiment, "Don't build such a pier if you can help it." I must add my personal opinion that if such a pier is essential, let it be in rough-hewn masonry.

My view also shows the skeleton tracery introduced into the belfry. This, I think, will be an eyesore for all time. I had rather have seen some rough masonry erected to do the work of catching up the overhanging arched fragment, or a proper reconstruction of the ancient window—duly recorded as modern, of course.

The effect of the method of wall coping is best seen by the view of the east end of the chapter-house. I confess I have my doubts whether so disfiguring a treatment can be justified by any practical or archæological necessity of avoiding counterfeits. It offends against my fifth principle sorely.

Let me turn now to Bayham Abbey, where a similar but much simpler problem had to be faced. Here the endeavour was to preserve and protect the building as far as could be without altering its form in any way. Bayham is a Premonstratensian structure of singularly interesting plan and character. The ruins—and, I may add, the ivy—had reached such a point that great havoc had befallen during the last two or three years, when the owner, Lord Camden, alarmed by the recent collapse of a great part of the last remnant of the interesting choir clerestory, came to the rescue and determined to make the remainder safe.

The ivy, of course, was first dealt with, as I have already described, but the growth was such that this was no easy affair. Some huge dead branches were ready at any time to bring portions of the structure with them. The roots had grown in the very centre of some of the walls and pressed out the ashlar on both faces. One new buttress had to be built to sustain the tottering nave. This was done with rough masonry, and rough masonry was used similarly to support a large overhanging piece of wall in the south transept. The tops of the walls were grouted in, the fissures made good, and the pointing executed as I have described. Lastly, ampelopsis has been planted, and I hope in three or four years, only those who actually know what Lord Camden has done will be aware that any hand but Nature's has been at work. Nevertheless, I believe the ruin is preserved for centuries.

In passing, let me say, never protect groining found in ruins with a wooden weather roof. Ruins are naturally neglected, and such a roof wants attention from time to time. If left alone it decays and becomes an additional weakness, instead of a protection. Use always permanent materials.

Gentlemen, the subject I have ventured to bring before you is not less difficult because barely two minds think alike upon it, and I can but hope that my views will receive their meed of criticism. But I hope, too, it will be kindly, and will give me the credit of pressing before all else upon the keen restorer the doctrine of "hands off," of recognising an actual as well as a sentimental beauty in time-worn and time-honoured antiquity, and of using my utmost endeavours to preserve what can be wiped out in an hour, and, like Humpty Dumpty, never picked up again.

But I must draw to a close. You may think that what I have said is elementary, and reminds you only of much that you have, or would have, thought out for yourselves. So far as you disagree with the methods I advocate, I hope that you will at least admit that they are logical and, above all, free from fads. The last man who should be entrusted with the care or preservation of our ancient monuments, is the man of fads. The great heritage committed to our keeping belongs to a higher plane and demands a broader view than lies within his horizon.

Mr. Caröe also read some remarks from Professors Church and Jackson as to the use of limewash for preserving stonework.

Professor Church wrote that his present conviction was that neither limewashing nor whitewashing was mechanically, chemically, or artistically an appropriate treatment for the surface of decayed stonework possessing architectural merit. Some method was required which would involve no tendency to hide, to encrust, and finally, to bring down the rotten superficial layer. The preparation to be used should reconstitute, so far as possible, the cementing material of the original stone without greatly changing its aspect. It should be penetrative, of easy application, and should prevent further decay. Limewash possessed one merit only—so long as it adhered to the surface hostile agencies were thwarted. But it possessed scarcely any penetrative power; it did not appreciably reconstitute the cement of the injured stone and it did not stop internal mischief.

Professor Herbert Jackson wrote:—"The application of limewash to decaying stonework undoubtedly tends to retard the decay to a certain extent. This is true both of sandstones and limestones which have been affected by sulphuric acid present in the atmosphere of towns. . . . There are, however, reasons why the application of limewash is restricted in usefulness. One is the difficulty of obtaining an adherent coating, with the result that unsuspected mischief goes on under the limewash, and is not perceived until it has proceeded far enough to cause large pieces of the stonework to become detached together with the loosely adhering flakes of limewash. This difficulty may to some extent be overcome by using the limewash in the form of a very thin milk of lime and applying it two or three times in this weak state. . . . Another reason why limewash fails to act in a very satisfactory manner is to be found in the properties of the compound formed by the action of sulphuric acid upon the lime. This compound (calcium sulphate) is sufficiently soluble in water to allow of its migration under the influence of drainage and of its consequent accumulation in parts of the stone which are in a position to receive such drainage. . . . In many cases this action has been proved to have been considerable, and to have been the cause of much damage. Notwithstanding the disadvantages connected with the use of limewash it is probably next to baryta water. . . ."

Mr. Aston Webb, A.R.A., in proposing a vote of thanks to Mr. Caröe, said the paper was a most exhaustive one, and no one could have dealt with the subject more authoritatively, or more courageously, than Mr. Caröe had done. Mr. Caröe began by a quotation from John Ruskin, who was the great anti-restorer of his time, as well as a great lover of architecture, especially of old work. One of the greatest distinctions which the Association had received

was that John Ruskin chose that society before whom (in 1857) to read his paper on the "Influence of Imagination in Architecture," and he could imagine no greater treat than to have been present on that occasion and have heard that grand old man read that paper. Every member of the Association ought not only to read it, but to know it by heart, and it had often occurred to him that if ever the Association were hard up for a paper it would give much pleasure and profit to have Ruskin's paper read again. In all that was said in that paper John Ruskin was enunciating the principles dealt with by Mr. Caröe, that any one who touched an old building must do it only for love, and that any one who touched an old building must, or should, entirely efface himself. Those were two necessary conditions. Mr. Ruskin said in his paper, if you put money before your art, it is all over with you; if you put fame before your art, it is all over with you; if you put position before your art, it is all over with you; and certainly any one who attempts to do any of these things in dealing with old buildings, it was all over with them. He thought that though perhaps they had to blame themselves, and much as no doubt criticism of the Society for the Protection of Ancient Buildings was correct, yet in comparison with the wholesale devastation which had taken place in France and Germany and other countries, we had come out of the necessary ordeal of restoration more satisfactorily than those countries. No one in dealing with this subject could avoid referring to the Society for the Protection of Ancient Buildings and referring with sympathy, as Mr. Caröe very properly did. All must sympathise with the objects with which the Society was started. There was an old saying that you cannot make an omelette without breaking eggs, and so work of this kind could not be done without a certain amount of disturbance. Many of them thought that the Society broke more eggs than was necessary, especially in its early days, but they must at the same time recognise the great work which the Society set out to do, and the use which a great deal of its effort had been, though they might regret the precise form which their action often took. He had seen great many of the leaflets issued by the Society, some of which were good and expressive—though of course a little exaggerated, as leaflets generally were. With regard to whitewash and limewash, he thought it could not be seriously intended to whitewash Westminster Abbey. If that were done he believed there would be a revolution, for no one in England who cared for architecture would tolerate that. He could not understand it; he had heard of a man building a church and then whitewashing it—whether it was because he did not like the mouldings, and wished to soften them down, he did not know—but he could understand that being done, but he could not think of Westminster Abbey, or any beautiful building, being treated in that way. With Mr. Caröe's proposition, *i.e.*, to efface their own work in restoration, they must all agree. He knew a church which was restored some years ago, and when subsequently visited by an American, said as he left the building, "Well, I guess you will be restoring this old church before long. I hope you won't be spoiling it." As to modern additions to a building, it seemed to him that they must face the fact that if a church was too small owing to the increase of inhabitants of a district, and additional accommodation had to be provided, the church ought to be enlarged. He was not sure, but he thought the Society for the Protection of Ancient Buildings suggested that the right thing to do was to leave the old church unaltered, and build another not far off. That was not a practical suggestion. To begin with, an unoccupied building went to ruin more quickly than an occupied one, and in country districts, where it was often difficult to keep up one church, it would be quite impossible to keep up two. In this case he thought the building should be enlarged, but that there should be obvious evidence that the addition was an addition of the day. As to organs, he thought that organs in churches were growing out of all reason. Organists should be put under a strong curb, for they came into a church and said they must have the big swell here and the bellows there, and a small chancel was soon swallowed up by the organ. A good organ was a fine thing in a church, but too often it was introduced more for the display of the organist than for the good of the architecture, which it often entirely destroyed. Mr. Caröe made an interesting point about the levels of churches and altars, this was often a difficult point, because the level of the altar was often insisted upon, and the lowness of the window was a difficulty. He thought the best way to get over it was to advance the altar and so raise it and the reredos independently of the east window altogether. As to Bayham Abbey, some years ago one of the arches of the gateway fell down, and he was asked to advise as to what should be done. He made a report, and in listening that evening to what had been done at Bayham (which he had not seen since its repair), he found that almost precisely what he thought at the time ought to be done had been carried out. He was delighted that the building, which was one of the most interesting in England, and the situation and surroundings of which were most beautiful, had been repaired in such an able way, and that what was proper and reasonable and best had been done to put the building in such a state as to make it last for centuries.

Mr. Thackeray Turner said he had listened to the paper with great pleasure, for he agreed with most that had been said by the lecturer. As to the little gibe about his or somebody's spelling on certain tablets, the reference was a little cryptic. As to the methods and statements of his Society, Mr. Caröe made a special point as to the necessity of architects, in dealing with ancient buildings, suppressing themselves. That was a difficult thing to do, but it was much more difficult for the secretary of a society with objects like those of the Society for the Protection of Ancient Buildings to write a letter which is pleasing, and to put hostile views so as not to give offence; it was a most difficult, often an impossible task, for people easily took offence when they did not want views and advice. Mr. Caröe had made two specific criticisms against the Society, viz., that the Society was responsible for advocating the use of whitewash, and also that it advocated the use of blue bricks in the interior of buildings. As to the blue bricks, he thought they were justified in trying to preserve a building without interfering with the external aspect of it. If they had to touch the face of a building in repairing it there must be a loss, for they could not touch an ancient building without a loss to it; but when repair was necessary they could strengthen the building by taking out portions of the interior rubble work and putting a material in its place which would bond in with the outside face of the wall; they would only lose some of the rubble, and if the building inside had a plaster face they would, in order to deal with the rubble and retain the front, only have to remove that plaster, which could be replaced. He admitted it was an evil to have to do this, but he thought it was a necessary evil. He did not think it mattered what material was used in this work, for it did not show, but blue bricks were convenient things to use, for where cement was used it adhered to them firmly, besides which the bricks did not absorb the water in the cement, and as it was desirable for the cement to set slowly that was an important matter. The blue brick was non-absorbent, and so the water did not quickly leave the cement used, which had a chance of setting slowly. Mr. Caröe advocated the use of cement on the top of walls. He (the speaker) had a great antipathy to that, though he admitted that used properly it was a useful material, but the difficulty was to get it properly used. Mr. Caröe seemed to think that it was possible to repair cracks and fissures with grouting. His (the speaker's) experience was that grouting would go down a very little way indeed. He had seen a wall which had been grouted pulled to pieces, and it was disappointing to see what a little way the grouting had gone. The process of repairing interior walls with blue bricks had for its definite object the getting over the difficulty of grouting. The bond could be put in and they could grout down to that level. As to the use of whitewash, he thought the reports of Professors Church and Jackson were not so unfavourable as to lead them to discard the use of whitewash. He did not want to whitewash every building, and "white"-wash need not be used at all; it could be coloured. His Society considered it a lesser evil to white—or colour—wash a building than to let it go on decaying. It was the sulphur in town atmosphere which destroyed buildings, and if a coat of lime was put on, the stonework was protected, and when necessary a fresh coat of limewash could be put on. It seemed wiser to do that than to let the building go, and after all whitewash could be removed if desired. It seemed unfair to posterity to let fine buildings which were decaying alone, and we ought to do what we could to preserve them. The experiments being carried out by Professor Church for the Society were not resulting quite as hopefully as they wished, but the work at Westminster Abbey had been a great success. He thought Mr. Caröe was mistaken in saying that Mr. Micklethwaite was responsible for the work at the western towers of the Abbey. Mr. Micklethwaite was not doing that work, and was in no way responsible, and it was a matter of annoyance to him that he was credited with it—probably because he did not sympathise with the work.

Professor Beresford Pite said he had much pleasure in seconding the vote of thanks to Mr. Caröe for a most interesting and instructive paper. He was a little in doubt whether the Association was the right body before which such a paper should have been read, because it was doubtful whether members of the Association would ever be likely to have old buildings to deal with, as old buildings became fewer and fewer. The paper had brought home to him very forcibly the fact that the restoration of ancient buildings was a highly-specialised matter—a matter which, in his opinion, did not belong to the work of an architect. It no more belonged to an architect than did the cultivation of young trees belong to the work of the woodcutter. There was a fascination about building—about bricks, and the smell of mortar and new timber—which was akin to the feeling that some statesmen and others had for cutting down trees: some wanted to plant, others cut down. When a young man he knew a country gentleman who bought a beautiful growing wood of over 100 acres, right in the middle of which he intended to build his house. The house was set out, and the owner, who was shown the amount of clearance he ought to make, began to cut down the trees himself, and by the time the house was finished he had made a skinny avenue here and there, but had destroyed the wood. That gentleman suffered from the curse of cutting down. Much the same fever took possession of a man when he had to deal with an old building, for once they began pulling it about there seemed to be no end to what was done. Architects were very liable to suffer from a craving to do new work—properly so, in a way. Mr. Caröe said they were not to be insane. Well, he (the speaker) ventured to say there was insanity in that, for how could a man know that he was not insane? A man had only his brain to tell him, and, if insane, how was he to know? It was much the same with another of Mr. Caröe's principles, *i.e.*, "efface yourself!" The only way to efface oneself was, in the case of a restoration, to let the whole thing alone, and, if the work were in the country, to take the next train back to London. Therefore, between inviting a man not to be insane and telling him to efface himself, they were putting him in an altogether hopeless position in regard to restoration, and the best thing would be for the architect to let it alone. Would it not be better to hand over all the old buildings in the country that needed repair to the Society for the Protection of Ancient Buildings? He made the suggestion quite seriously, for he had no doubt that this matter of the repair of ancient buildings must be separated as a doctrine and as an art from the art of building and designing. The two streams of thought and action came into conflict, and it was very difficult to combine them. There was the highly conservative element—the lover of history and antiquity, and the lover of that "surface" to which Mr. Turner had referred, though it seemed to him that our love of ancient buildings ought to be due to a little more than the love of their skin. The masonry wall from back to front was as much a matter of historical or antiquarian interest as the surface of the wall, and that ought not to be overlooked. It seemed to him that the antiquarian and historical element were very strong, and were contrary to the other element—the element with which the architect had to deal—the practical element, and it was absurd to oppose practical requirements and put them in the background. The architect was not called in for that purpose, but to give effect to those requirements, and if he ceased to do so

he would then, indeed, efface himself, and he might consult with his friends whether he was insane or not. The position of an architect called in to see to an ancient building was a very anomalous one owing to this contrast and the difficulty which existed between the antiquarian and the progressive elements, and it seemed to be a chronic difficulty. The repair and preservation of an old building was one thing, and the alteration of it and the addition of new work to it was another, and when both had to be done in the same operation and by one and the same man for the same employer the difficulty was very great. He was full of admiration of Mr. Caröe's unstinted zeal in the matter of the roof of Gedney Church and in the repair of its walls; that was an evidence of a keen and careful study, and an intellectual grasp of the subject. But take the case of a man who had been called in to build a chapel or addition to a building, or something which was to be an integral part of it—to say that he was not to design it as something distinct and in defiance of everything historical, was asking him not to be essentially practical and modern. The treatment of ancient buildings was becoming increasingly a matter for experts, and the antiquarian and historical elements were so important that they were almost impossible to a man who should be eminently practical and courageously self-assertive. As to the work at Westminster Abbey, he had already understood that Mr. Micklethwaite was not responsible for it: the work was in continuation of something done before he was consulted, and he (the speaker) regretted it. He would rather see the decayed work there, which did not affect the structure, than such pedantic restoration work—nineteenth-century tracery, for instance, done fifteenth-century way, for that was what it amounted to. In regard to old buildings, it was vital to the architectural student not only to study the form but the technique of the work to get to love the building for the way in which it was built—for the way in which the materials were handled. One never need be afraid of modern work being mistaken for old, for modern masons did not work their stones as the thirteenth-century masons, for instance, did, and if one began to dissect a wall and looked at a section, there was no mistaking its character or the habit of the men who built it, for that was written in the work for those who had eyes to see. With eyes to see how work developed, one got a wonderful key to the date of mediæval work, and this work could not be imitated, for modern masons would not repeat the work that the old masons did. They would now probably use machinery for working the masonry at Kirkstall, for instance. As to lime-wash, and whether there was any merit in it, he knew a mason or two who insisted that in London limewater applied to the softer class of building stones rendered them much more serviceable. As to the dressing of stone, there seemed nothing more absurd, and there was nothing more irritating, to his mind, than to see Norman restorations—he had Southwell Minster in his mind—where all the old feeling was lost sight of and forgotten, or undiscerned, and where modern masons, under the direction of architects, had cut zigzags and chevrons and ornaments of that sort all round the arches just as if they were Norman workmen doing the best they could, and employing the highest forms of art known to them with the greatest possible skill. That was a stupid practice, which no words were possible to denounce. As to the use of *Ampelopsis Veitchii*, it was delightful to find it suddenly introduced as the friend of our ruins.

The Chairman, in putting the vote of thanks, said the paper must be of great interest to all of them, for they all took an interest more or less in our old buildings and their restoration. The more they came into contact with old work the more regret most of them would feel at having to do anything to them, and the more carefully they would carry out the work when the work was necessary.

The vote of thanks having been heartily agreed to, and a vote of thanks having, on the motion of the Chairman, been passed to Mr. F. R. Taylor for making the lantern slides which had been shown, and to Mr. E. W. M. Wonnacott for operating the lantern,

Mr. Caröe, in reply, said he should like to add his thanks to those two gentlemen, and also to Mr. Cubitt who obtained the photographs and made the slides in connexion with Gedney Church. As to Mr. Turner, he had no intention of accusing him of misspelling but he might mention that he had in his mind a tablet which he knew had been erected under the ægis of the Society for the Protection of Ancient Buildings. It related how a certain tower was built in such and such a year, and how that in consequence of a defective bell frame and the ringing of the bells it began to tumble down, and how, under the direction of the Society, it was rebuilt in blue brick within 10 ft. of the "botom." As to Mr. Turner's reference to the use of blue bricks in the interiors of walls, he (the speaker) had especially referred to their use in the repair of cracks and fissures on the outside walls. Grout, if properly used, would run down about 5 ft., but it was not safe to trust to it going down more than 3 ft. He once had the satisfaction of running in 20 tons of cement into the walls of a tower, and after that he felt it could not be said that grout could not be got to penetrate. The effect of ringing on a church tower was often very curious, and there were what were called ringing cracks. The effect of ringing in the case of an ashlar building, with a loose core inside the walls, was to make the inside walls settle down and the outside walls to stay, and, all the weight thus coming on the outside walls, they began to crack. As to the work at the tower of Westminster Abbey, Mr. Micklethwaite told him he was restoring it and that, as he was using Portland stone, he objected to Mr. Pearson's work next door because it was in Chilmark stone. He did not agree with Professor Pite as to that work, and he thought that Mr. Micklethwaite was doing the only possible thing in the circumstances. It might be unfortunate, but it was necessary and the treatment was right. If Mr. Micklethwaite, however, had restored the stonework in blue brick, he would have been doing a thing we could not tolerate. He (the speaker) did not think he had said they were not to be practical. He was sorry he had not stated that they ought to be practical. It seemed to him that the sustenation of an old building and the retention, for instance, of its roof timbers without taking them down, and the dealing with structural necessities without destroying the appearance of the building, were things which no one but an architect could tackle—the mere antiquary could not, and the restorations of the antiquary were generally most futile affairs. What was necessary was a man who possessed the structural knowledge and ability which Ruskin referred to as being inseparable from the artistic side of design. The greatest designers were constructors, and a constructor was necessary in these works. He had said: "be individual," and he meant be individual when called upon to design new work attached to old. By all means be individual, but be that in such a way as would be in harmony with the other work and not out of harmony.

The Chairman announced that the next meeting would be held on the 25th inst., when Mr. E. A. Gruning will read a paper on "Arbitrations."

The meeting then terminated.

THE ARCHITECTURAL ASSOCIATION SPRING VISITS:

V.—ELECTRA HOUSE, FINSBURY PAVEMENT.

On Saturday, April 12, the fifth visit of the Session was made to the new offices of the Eastern Telegraph Company, Electra House, Finsbury-pavement. Mr. John Belcher, A.R.A., the architect, kindly met the members, a large number of whom were present, and thoroughly explained the many and varied points of interest.

The building stands at the corner of West-street and Finsbury-pavement, and Mr. Belcher has again shown that business premises can be designed to fulfil all the conditions required by the exigencies of modern commercial life, combining at the same time architectural greatness with the impress of their own particular individuality.

The never-failing mystery of the electric telegraph, its wonderful uses and possibilities, and its intimate relations with our lives, have been finely indicated by the work of Mr. George Frampton, Mr. Goscombe John, A.R.A., Mr. Alfred Drury, and Mr. F. W. Pomeroy, all of whom have worked on the central portion of the Finsbury Pavement façade. The great semicircular window also, over the entrance doorway, is filled with most beautiful glass by Messrs. Powell. The design by Mr. Belcher shows the Goddess Electra seated on the globe, and lines representing cables stream from the head of the figure to the extremities of the window, which is divided into three panels by mullions. At the bottom of the centre panel is the full-bellied ship of ancient days and a light-house, thus forming an effective contrast between the old and new methods of communication.

The entrance-hall, all in Portland stone, contains some charming detail, and will have a sculptured frieze by Mr. Pomeroy (the beginning and end panels of which are already carried out) illustrating in a poetical way the life and effects of the deep-sea cables. Through this hall, and immediately facing the entrance, are the main stairs and lift. Right and left of these are corridors which give access to the front shops and offices facing Finsbury-pavement. These corridors are lighted by long areas, which, again, give light to the clerks' large offices behind.

It is worth noting that an entirely separate area has been arranged to light the sanitary conveniences, and thus these will not ventilate themselves into working rooms, as is so often the case. The areas are in glazed bricks, and are easily cleaned by means of a permanent travelling cradle.

The ground floor in front is devoted to shops, and at the West street corner is a bank; the first floor offices will be let off, but the Eastern Telegraph and other allied companies occupy the remainder of the buildings. The Board-room and chief officials' private rooms are on the second floor, in front, the joinery being all in mahogany.

The first, second, and third floor corridors, with their stone piers and pilasters and small flat domes and vaults, were particularly noticed, and a delightful little finial, a bronze globe, intersected with cable lines, supported by winged figures, at the foot of the side staircase, was much admired.

The entire building is perfectly lighted, and the healthy working conditions for the occupants have been thoroughly considered—a marked contrast to many modern city buildings. The elevations are all in Portland stone, with the exception of the ground floor story, which is of Cornish grey granite; the plinth is slightly polished, but, needless to say, the remainder is left fine-axed and tones well with the stone above.

Disengaged columns, the caps of which are all varied, give the required effect of light and shade, and the treatment of the windows, whereby a deep reveal is obtained internally, is well worth study.

Space does not permit of a more detailed description, and it only remains to say that the visit proved of more than usual interest.

THE INCORPORATED INSTITUTE OF BRITISH DECORATORS:

ANNUAL DINNER.

The annual dinner of the Incorporated Institute of British Decorators was held on Monday evening at the Trocadero Restaurant, Shaftesbury-avenue, Mr. J. D. Crace, the President, in the chair. Among those present were Col. Bennett, Capt. Andrews, Capt. Heath, Messrs. E. T. Hall, F.R.I.B.A., J. F. Crace, Scott Morton, J. Sibthorpe, W. G. Sutherland, G. C. Haite, F. Cowtan, F. G. Dear, F. C. Simpson, W. A. Smith, F. W. Englefield, J. Scott, A. Sanderson, W. O. Greenaway, J. Carpenter, J. Morley Williams, J. G. Cole, J. Higson, J. Anderson, C. Cowtan, and A. S. Jennings.

After the usual loyal toasts, Mr. W. Scott Morton proposed "The Imperial Forces," which was responded to by Col. Bennett.

Mr. W. Sutherland, in submitting "The Incorporated Institute of British Decorators," said the formation of the Institute was due to the late Mr. Thomas Bonner. The idea had been formulating in his mind for some years, awaiting the opportunity to be brought forth. It was developed in Manchester some eight years ago, and ultimately brought into construction four years later. His idea was to gather in one institute all those decorators in the United Kingdom who had an ideal in their trade, to whom their calling was not a mere matter of pounds, shillings, and pence, but who had some higher object at which to aim. The success of their work as an institute, he considered, was due to two things: first, the connexion they had been enabled to establish with the Painters' and Stainers' Com-

pany, who had given them permission to make their headquarters at their hall; and next—and this was by no means second in importance—that they had been able to call to their aid and enlist in their work the ability of Mr. J. D. Crace, who was their first President. They hoped he would continue to hold that position for many years.

The President, in reply, said the Institute had been the means of raising the standard of the calling and those who practised it. He considered that in no calling or profession was it possible to make some accepted standard of conduct and of professional practice until some centre of meeting and some means of recognising a brotherhood, such as an association or institute, had been established. In an institute there was a public opinion—a limited public opinion, inasmuch as the members themselves exercised a certain moral pressure on each other. In looking round at other callings, they recognised a higher standard, not only of knowledge, but of conduct and honour toward one another as the result of the formation of such societies. The whole tone of the architect's profession, for instance, had been elevated since the establishment of the Royal Institute of British Architects. Fifty years ago there was a small number of architects who stood high in their calling, and of whom no one could say anything but good, but there was a very large following of men whose reputations were open to much criticism. It would not be possible to find this large following now, and, in fact, there was no question that where men of any calling were brought together, they not only learned to respect one another, but to establish amongst themselves a standard of conduct. The interchange of knowledge and details of practice which resulted from the meetings were also very beneficial. The men who had been most successful were, as a rule, only too pleased to give others the benefit of their experience. The interchange of ideas which followed the transmitting of experience was of inestimable value. A subject which was engaging their attention at the present time was the question of arbitration. He considered that arbitration, if once clearly established, would lead to a great saving of trouble. Many misunderstandings arose, and litigation followed for want of a proper understanding between the employer and decorator. He had had very few disputes, but still these might have been saved if there had been some decision which could have been recognised as being impartial. The question of contracts was also very important. They were very anxious to devise a form of contract which should prove of advantage both to architects and decorators. In this they hoped to obtain the co-operation of the Royal Institute of British Architects.

Mr. C. Cowtan then proposed "The National Association of Master Painters of England and Wales, Scotland and Ireland." He said that the Association had done more for their business than any other institution which had existed in connection with their trade. They had to deal with the British workmen, who formed a far more difficult element than the architects with whom the Institute of British Decorators had to deal, and he was glad to say that they had achieved a considerable amount of success. It was gratifying to know that they had awakened the apprenticeship system to some extent. They had been unable to do so in London, but they had been successful in the provinces, and from there they obtained the best workmen.

Mr. J. G. Cole, in responding on behalf of the Association for England and Wales, said they were doing a great work even though, perhaps, they were travelling in the lower grades of their craft. During the eight years of their existence they had been able to get on with their workmen in a very satisfactory manner. They now had a membership of 1,600 master painters, and among other things they had assisted technical schools already in existence and helped in the formation of others. They had also done their best with the manufacturers so that they could get the best materials, and they now had an analyst in connexion with the Association to whom unsatisfactory materials could be sent.

Mr. John Scott, in replying for the Scotch Association, stated that owing to the details being decided by the local branches, they had more time and energy to go forward in the higher aims of the craft. There were many things which local associations could consider, and one was the question as to the advisability of apprentices attending day technical schools as well as night schools.

Mr. Sibthorpe, replying for the Association in Ireland, said that in his country they never regretted the presence of the genuine decorator who hailed from England. He well remembered the great stimulus which was given to genuine decoration in Ireland by a number of worthy instances of what decoration should be that were rendered by Mr. Crace's father. They, however, regretted the presence of the upholsterer who did not give value for money received in the way of decoration. This was one of the things which this Institute of British Decorators would set right. They would rescue decorative art from the carpenter and curtain-man.

The President proposed "The Visitors."

Mr. E. T. Hall responded. He said that with regard to the question of contracts there was a keynote which they should bear in mind, namely, that in laying down conditions ambiguity should be avoided. When the conditions were not clear misunderstandings arose. He then referred to the wonderful buildings which existed in Ceylon 300 years before Christ. There was evidence of a structure 360ft. in diameter, and 405ft. high. In the king's room in one of the palaces there were 1,600 columns, probably gold plated, with friezes of precious stones—a style of decoration which very few clients would be able to pay for at the present day.

ENGINEERING SOCIETIES.

THE INSTITUTION OF JUNIOR ENGINEERS.—At the meeting of this Institution, held at the Westminster Palace Hotel on April 11, the chairman, Mr. Percival Marshall, presiding, the paper read was entitled "Notes on Modern Lighthouse Construction," by Mr. G. Drysdale Sweetman, of Ryde. To illustrate the evolution of structural design, the four erections on the Eddystone were briefly examined, and their chief points of difference indicated as follows:—The base of Winstanley's tower (1695) was built of stone strengthened with iron bands. Its sides were vertical, and were encumbered with a profusion of unnecessary and even dangerously obstructive ornament. It was in the form of an octagon and 100 ft. high. Destroyed by a storm in 1703, Rudyerd's tower (1705) was built of wood ballasted with stone. Its plan was circular, and the unwieldy ornament was omitted. In section it was a frustum of a cone, 23 ft. in diameter at the base, and 14 ft. at the top, and about 67 ft. high. The foundation rock was levelled off in steps, and the tower united to it by means of bolts keyed into the rock. It was destroyed by fire in 1755. Smeaton's historic structure was finished in 1759. The material was stone, and for external form the trunk of an oak tree was chosen. The base was thus considerably broadened and the waist narrowed in comparison with Rudyerd's tower. The masonry was bonded together and into the rock by an elaborate system of dovetailing. It was 76 ft. 6 in. high, and was partially removed in 1882 owing to the concussive erosion of the bed-rock, which threatened its stability. Douglass' new Eddystone was built of granite, and differed from the last named in having a cylindrical base with vertical sides carried 2 ft. 6 in. above high water mark. The tower, which was a concave elliptic frustum, started from the top of this vertical plinth. The total height from foundation to vane was 170 ft. The walls were 8 ft. 6 in. thick at the base, and 2 ft. 3 in. at the top. The tower was solid to a height of 25 ft. 6 in. above high water. In some experiments on wave power, made at the Skerryvore and at the Bell Rock by Thomas Stevenson, so great forces as 6,083 lbs. per foot at the former and 3,013 lbs. at the latter station had been recorded. With these stupendous forces to combat it behoved the designer to appreciate every minute detail of the disturbing elements, and to endeavour to neutralise their action. By spreading out the base, not only was a broader foundation area obtained and the centre of gravity lowered, but also the force centre of each wave stroke was raised by the momentum of its impact, and a portion of its violence dissipated in overcoming the force of gravity. There was a limit, however, to this base-spreading policy, set by the tendency of the wave crests and spray to rise so as to obscure the lantern, and it was partly to obviate this difficulty that the late Sir James Douglass designed the new Eddystone with a cylindrical base. The generally accepted shape for a lighthouse in plan was circular, but the suggestion was offered that with a polygonal plan of many sides, but little more obstruction would be made to the waves, and instead of swirling round as in the case of a circular tower, the waves would be made to take a rather divergent course, and so offer a leeside for landing purposes. The foundation courses should, in all cases, be sunk below the surface of the rock, for though the stability of the structure depended, for the most part, on its weight and the low position of its centre of gravity, the idea was to make the tower virtually a projection of the rock itself. It was important that the pressure of all the materials and structural units within the tower should act vertically, so as not to produce a resolved force operating laterally as an outward thrust. Care should be taken to so locate the openings in the tower as to afford them the greatest protection. It was interesting to note that the presence of seaweed was of great advantage in breaking the force of waves. The internal accommodation usually comprised the service-room, which contained the lantern, attendants' room, bedroom, general stores, oil stores or (as the case might be) gas-stove, dynamo-room, &c. A water-tank low down in the base and a crane were also necessary.

The author, in referring to materials of construction, pointed out that, although skeleton towers were often easier to erect than were masonry ones, owing to the difficulty of devising a safe landing stage during rough weather, and also to the impossibility of fixing any floor below the highest probable wave crest, accommodation was greatly hampered, if every high tower were not otherwise necessary. For masonry structures, the granites, syenites, and porphyries were the most useful stones. In some situations the use of concrete had much to recommend it, and if only the difficulties of cracking could be obviated, there was no doubt but that the material would be more largely used. Besides the popular theory of expansion and contraction, the possibility of some sudden chemical change in the later portions of the settling process producing a disruptive molecular disturbance, or, perhaps, of the mass being in itself in such a state of initial tension or compression that it was sensitive to ætherial or seismic tremors which would not affect a more resilient material, were advanced to account for the cracking of mass concrete.

The invention of the Argand burner (1870) marked the commencement of the concentrative systems which, starting with oil, had probably reached their maximum intrinsic brightness in the electric arc. The Trinity House oil burners were generally of the five or six concentric wick type, with intervening air spaces, the outer diameter of a six-wick lamp being 4¾ in. A greater number of wicks was sometimes used, but the heat from them was enormous. A seven-wick lamp consumed about a gallon of oil per hour. The oil in the lamps was supplied under pressure by gravitation, air, or hydrostatic head, or by clockwork pumps. The introduction of incandescent mantle burners had given a fresh impetus to oil illumination. The two principal systems were the oil gas and the petroleum vapour. In the former the oil was vapourised at a shore station, and the gas compressed to ten or twelve atmospheres; the burning pressure was usually 2 lbs. to 3 lbs. per square inch, the consumption $\frac{1}{75}$ cubic foot per unit candle of flame intensity at one atmosphere. From the fact that, among others, the French 5th order occulting light at St. Nazaire was left unattended during the night, the system seemed quite reliable. The apparatus costs about 800*l*. In the petroleum vapour system the oil, under a pressure of from two to three atmospheres, was forced through a vaporiser which was heated by the burner itself, after lighting; the consumption was about 8 grains per unit candle. This system was not so easy to work as was the oil gas, but it required less apparatus. The electric light had many disadvantages, and except in a few cases, could not be said to warrant the increased expenditure over other methods. Its glare made it very unpopular with mariners, and it was also deficient in penetrative power through fog, owing to its containing so large a quantity of highly refrangible rays. The proportionate reduction in a thick fog was four times greater than gas. Oil and gas were about equally affected by atmospheric condition. In fine weather the present arrangements were

quite sufficient, but at the first sign of mist they were practically useless, and it was in this direction that future improvement must be looked for. The extensive use of coloured lights was impossible, owing to the great absorption of light in passing through the screens. Taking white light as of unit intensity, red was ¼, green ⅓, and blue ½. Red was, therefore, the only permissible colour from an economic point of view; it also possessed the advantage of being less easily absorbed than white light in foggy weather. The introduction in 1890, by the late M. Bourdelles, of the mercury float mechanism was a great point of progress, and by it, in the feu éclair or lightning flash system, a far more powerful beam and quicker flash was made possible by the faster rotation of a less extensive lens field. The conclusion of the paper was devoted to the consideration of optical arrangements. The great superiority of the dioptric and catadioptric glass lens, over the older catoptric or metal reflector system was an established fact, and it was now possible to totally reflect or refract nearly every ray issuing from the source of illumination into a useful path. Messrs. Alan Brebner, N. G. Gedge, G. Robus, P. J. Waldram, A. W. Marshall, W. E. Lilly, and A. W. Tyler took part in the discussion which followed the reading of the paper, and the proceedings closed with the announcement of the ensuing meeting on May 2, when a paper would be read by the Hon. Librarian, Mr. Lewis H. Rugg on "Some Factors in Colonial Railway Construction."

COMPETITIONS.

LIVERPOOL CATHEDRAL.—At a meeting of the Liverpool Cathedral Committee, on the 14th inst., it was decided to invite two eminent architects to act as the advisers of the committee in the selection of architects who will be invited to submit designs for the cathedral and in the ultimate choice of the design. The names of the two gentlemen will not be made public until their consent has been received, but it is stated that one represents the Gothic and the other the Classic school of architecture.

HOUSING OF THE WORKING CLASSES, BATTERSEA. — The Battersea Borough Council recently invited competitive designs of houses for the working classes, consisting of five types of houses, as follows:—

1. A house of two stories containing not more than five rooms and scullery, &c.
2. A house consisting of two self-contained tenements containing three rooms and scullery, &c., on each floor.
3. A house consisting of two self-contained tenements containing four rooms and scullery, &c., on each floor.
4. A house consisting of three self-contained tenements containing three rooms and scullery, &c., on each floor.
5. A house consisting of three self-contained tenements containing four rooms and scullery, &c., on each floor.

The instructions were furnished to 106 architects and fifty-eight sets of designs were received. On January 31, the committee met and received these designs, and subsequently appointed Mr. T. Blashill, late Superintending Architect, London County Council, as an expert to assist the committee in the matter. The committee on several occasions conferred with Mr. Blashill and carefully examined the various points connected with the designs of the competing architects. Having in view the number and class of designs submitted they were in favour of awarding four extra premiums of 10*l.* each in addition to those of 50*l.*, 25*l.*, and 10*l.* already agreed upon, and having obtained the authority of the Council in the matter the committee came to the following decisions, viz.:—

(*a*) That the authors of design No. 37 have submitted the best set of designs, particularly as to the cottage and the four-room tenements, and we have awarded the first premium of 50*l.* to Messrs. G. T. Smith & Weald, of No. 10, Guildford-place, London, W.C.

(*b*) That the author of design No. 12 is the next in merit, particularly as to the three-room tenements, and we have awarded the second premium of 25*l.* to Mr. J. Sydney Backlesby, of "Fairbairn," Kingston-road, Merton, Surrey.

(*c*) That the author of design No. 21 is the next, particularly as to the four-room tenements, and we have awarded the third premium of 10*l.* to Mr. H. Bertram Tarrant, of No. 27, Devereux-road, Wandsworth Common, S.W.

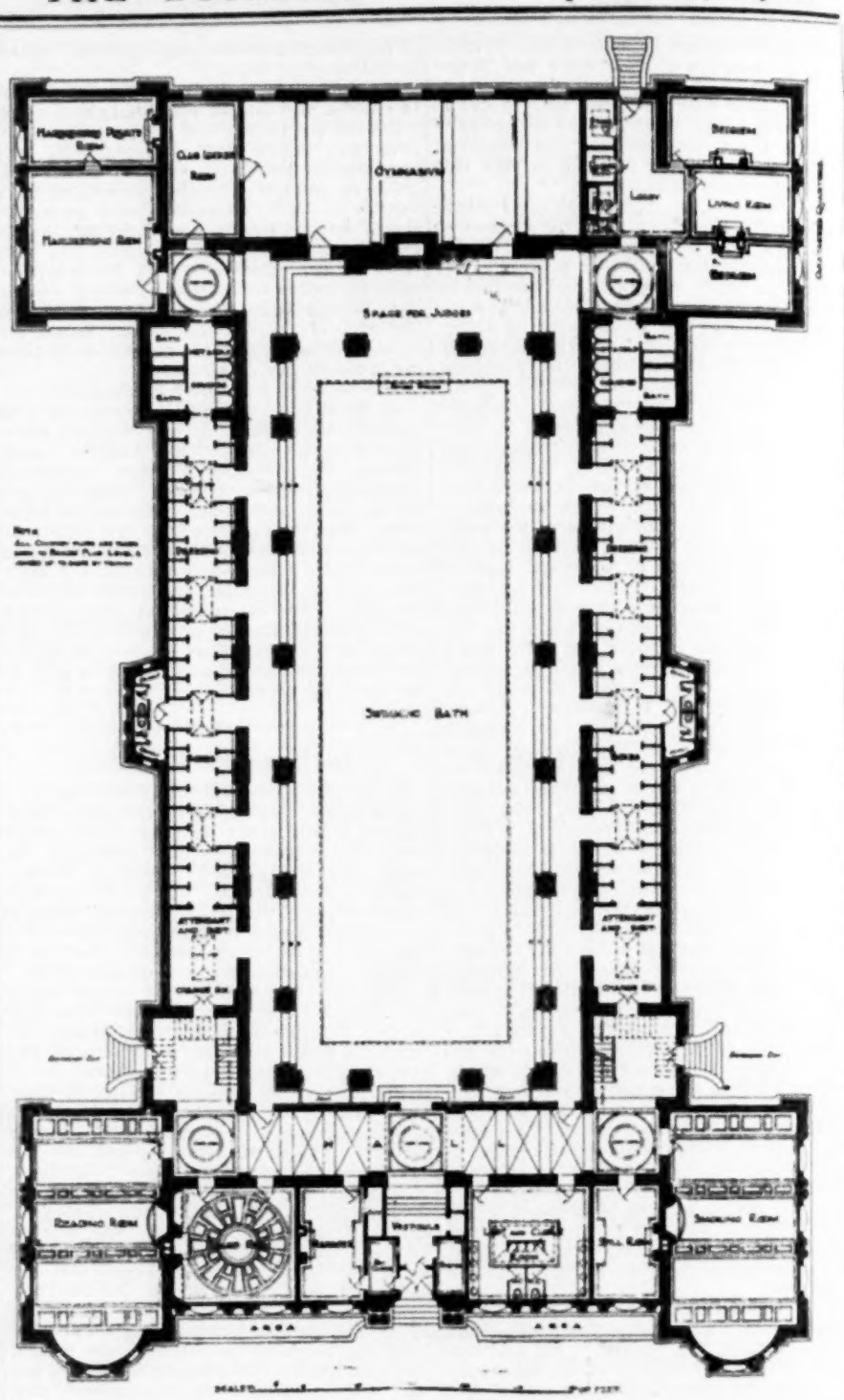
(*d*) That the authors of the following designs (placed in the order of their number) be awarded the extra premiums of 10*l.* each upon their consenting to allow the designs to become the absolute property of the Council—the condition already attached in cases (*a*) (*b*) (*c*).

No. 4.—Messrs. Haigh & Spencer, of 19, Spencer-road, Wealdstone, Middlesex.

No. 8.—Mr. W. G. Lewton, of No. 6, The Forbury, Reading.

No. 19.—Mr. William West, of No. 29, Craven-street, Strand, W.C.

No. 23.—Mr. F. J. W. Goepel, of No. 36, Bulwer-road, Lytonstone, N.E.



Design for a Swimming Bath. Plan.

Arrangements are being made for the whole of the designs to be exhibited at the Municipal Buildings, Lavender Hill, from Monday, April 21, till Saturday, April 26, inclusive, during the following hours:—Monday, Tuesday, Thursday, and Friday from 2 p.m. till 9 p.m.; Wednesday and Saturday from 2 p.m. till 5 p.m. A copy of the report of the Committee also may be seen on application.

Illustrations.

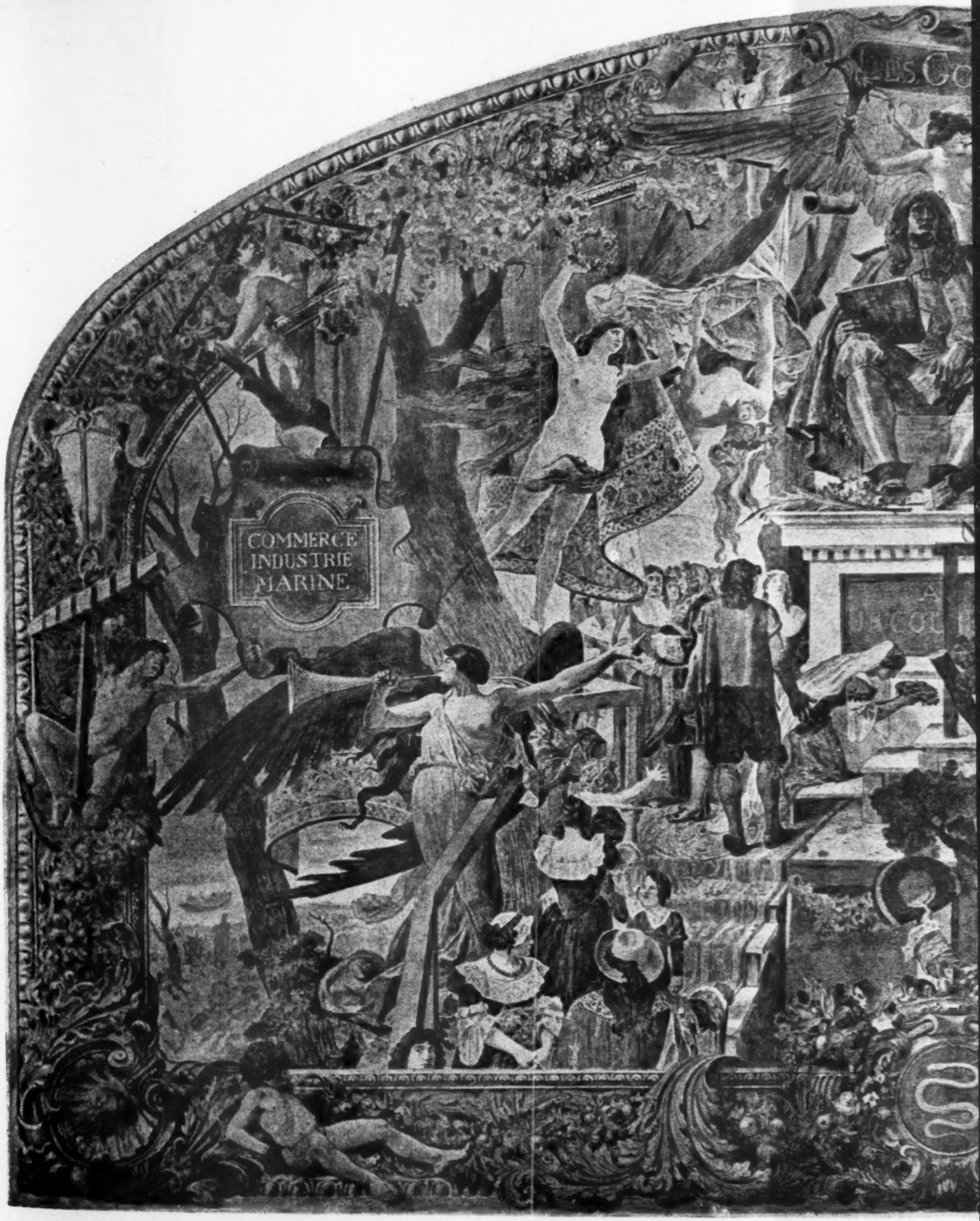
"THE APOTHEOSIS OF COLBERT": DESIGN FOR TAPESTRY.

THIS is a reproduction from the cartoon drawn by the eminent French painter, M. Jean Paul Laurens, for execution in tapestry at the Gobelins National Manufactory of France. The design is one of two cartoons commissioned from M. Laurens by the Municipality of Paris, and which are to be reproduced at the Gobelins, at the cost of the State. The other cartoon, not yet taken in hand, is to represent the group of Jansenist philosophers of the Port Royal des Champs. The two tapestries are ultimately intended as decorations for the Salle des Fêtes of the Mairie of the XIIIth arrondissement, which is near the Gobelins factory.

Colbert, the great and enlightened Art Minister under Louis XIV., was the founder of the Gobelins tapestry works, and there is therefore a suitable motive for his commemoration in a Mairie closely adjoining an institution of his own creation. To English eyes it cannot be denied that the foreshortened seated figure of Colbert, on a larger scale than the other figures, and realistically clad in the costume of the period, has a somewhat absurd effect among this crowd of allegorical and nude figures. The French are so much more used to the idea of "apotheosis" subjects that this incongruity would probably not strike them in the same way. Apart from this point, the design is a very fine one in a decorative effect, both in the treatment and grouping of the figures and in the subsidiary ornamental detail; and it is, moreover, exceedingly well adapted for tapestry.

DESIGN FOR A SWIMMING-BATH.

THIS is a design made in competition for the Soane medallion this year, and which obtained for its author, Mr. E. Vincent Harris, an "honourable mention" in the competition. We give the plan, and the interior perspective of the bath.

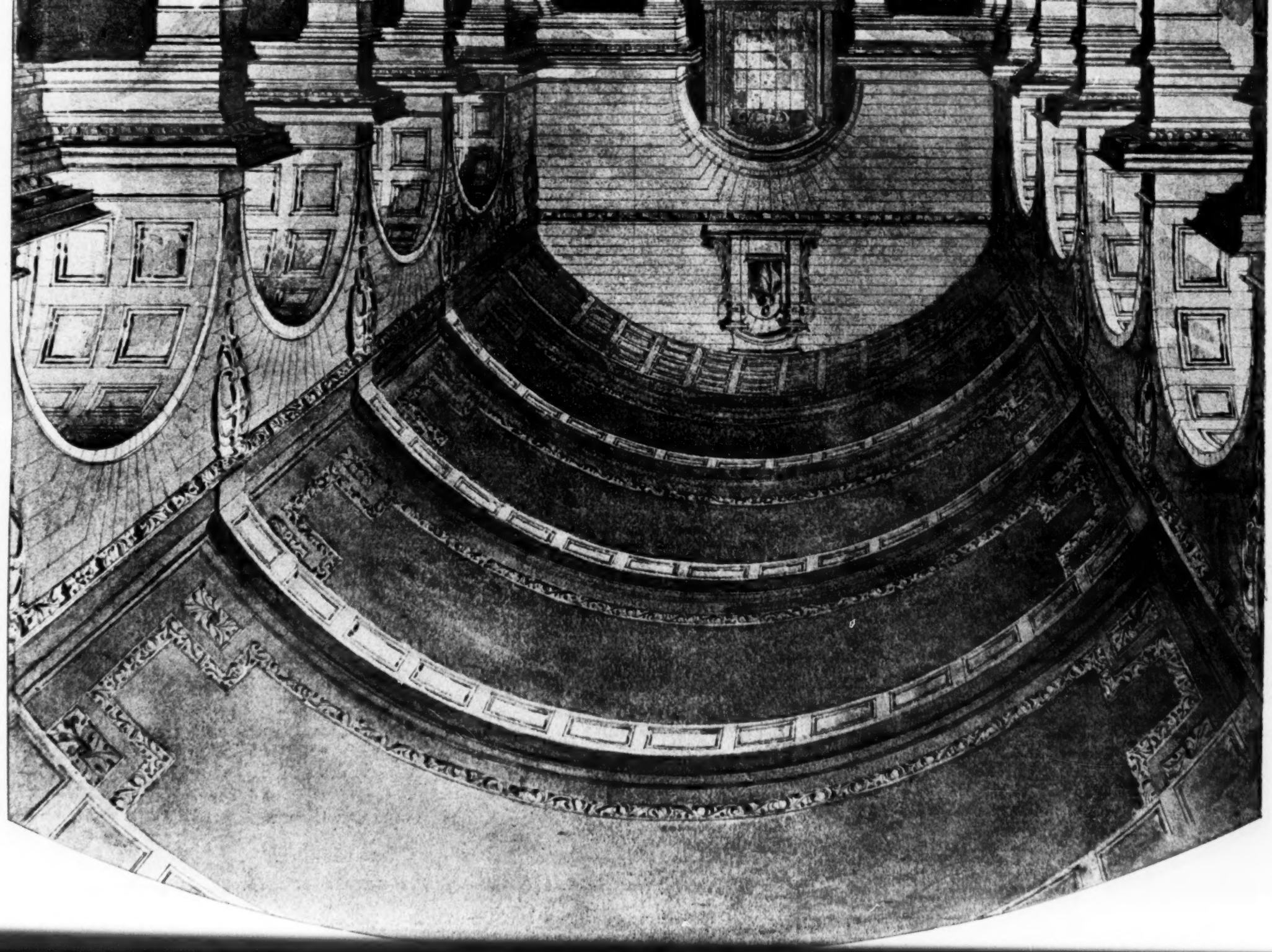


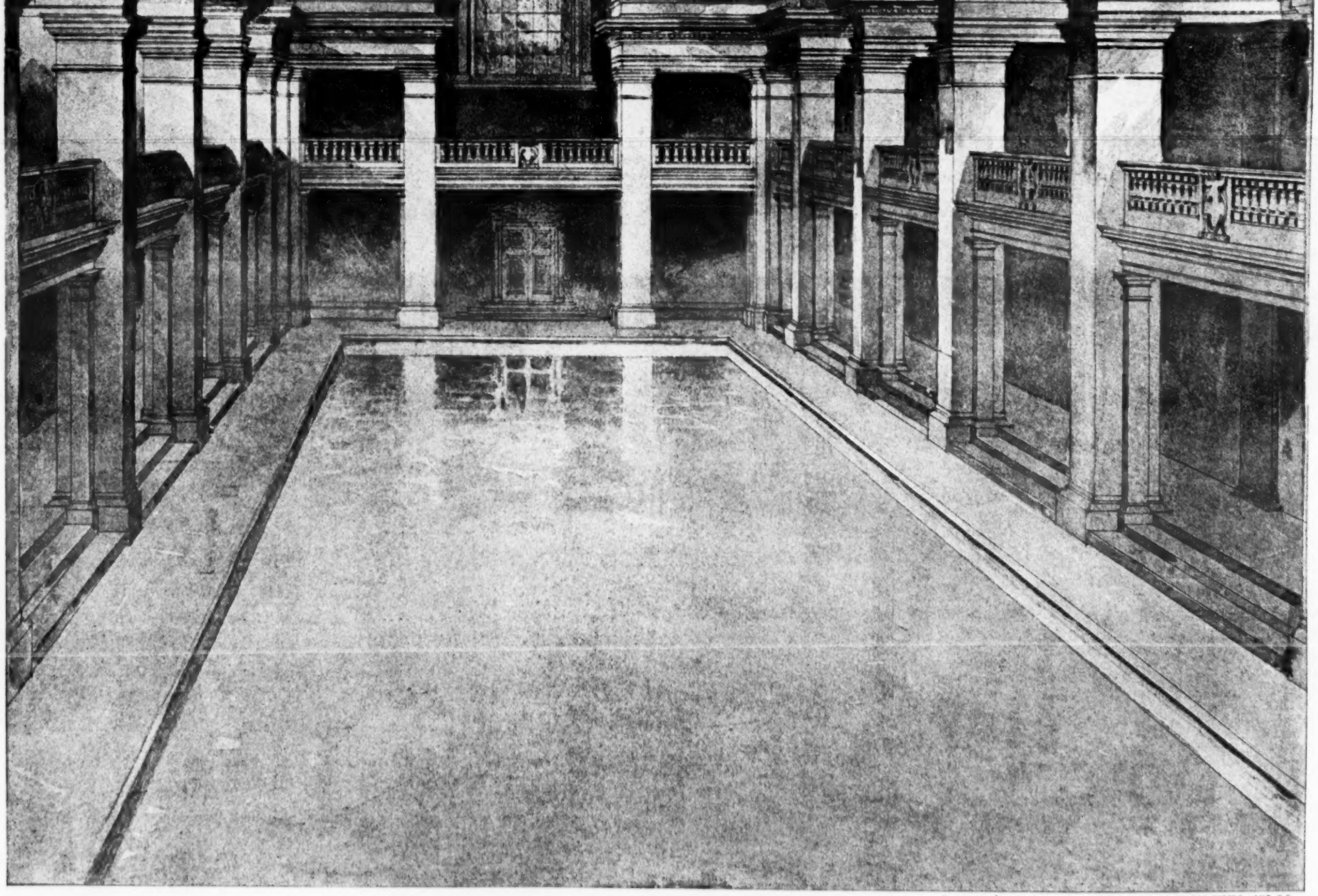
"THE APOTHEOSIS OF COLBERT": CARTOON FOR EXECUTIO

"THE APOTHEOSIS OF COLBERT": CARTOON FOR EXECUTION IN GOBELINS

"IRIS" PHOTO SPRAGUE & C° LTD 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

GOBELINS TAPESTRY—By M. Jean Paul Laurens.





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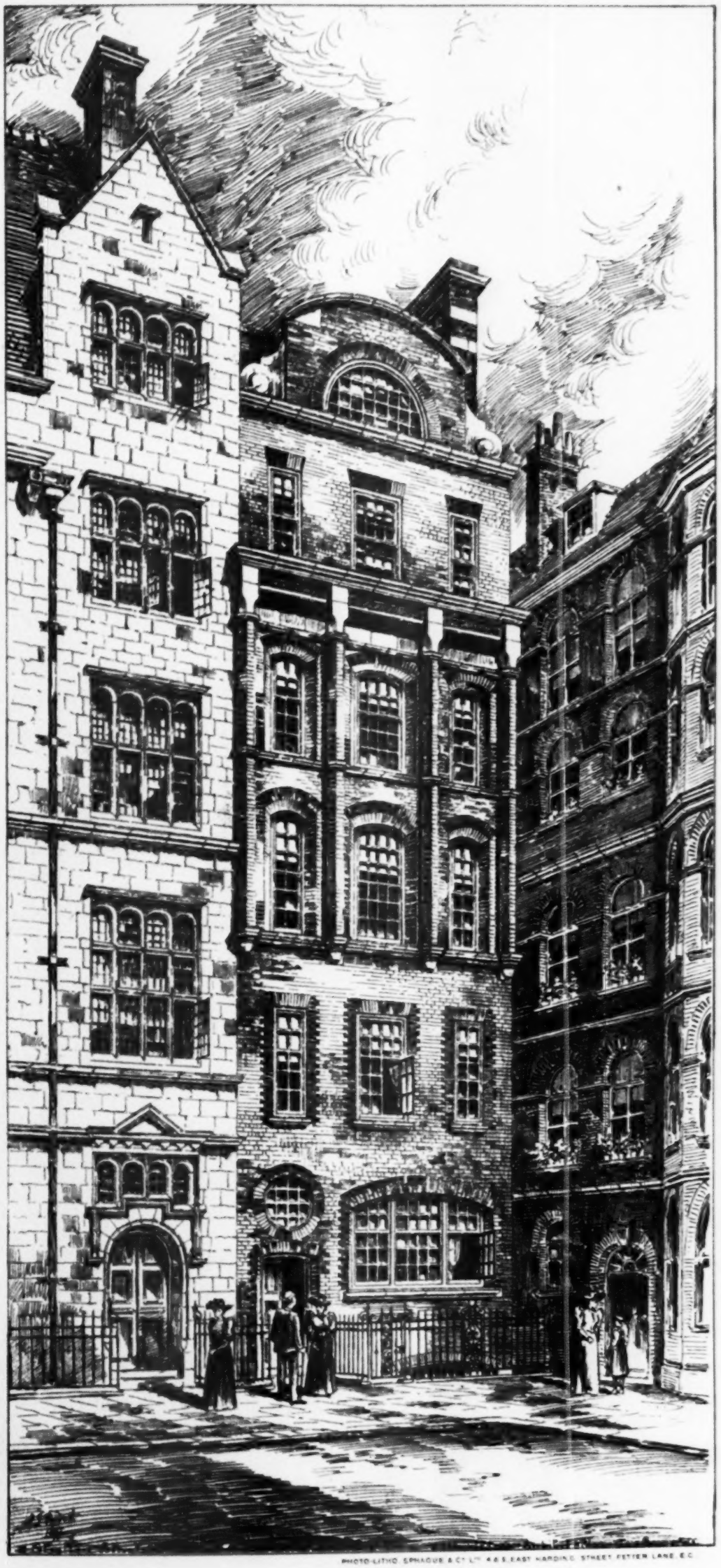
DESIGN FOR A SWIMMING-BATH.—By Mr. E. Vincent Harris

No 15. Stratton St. W. for H.A. Johnstone Esq
Oct. 1898



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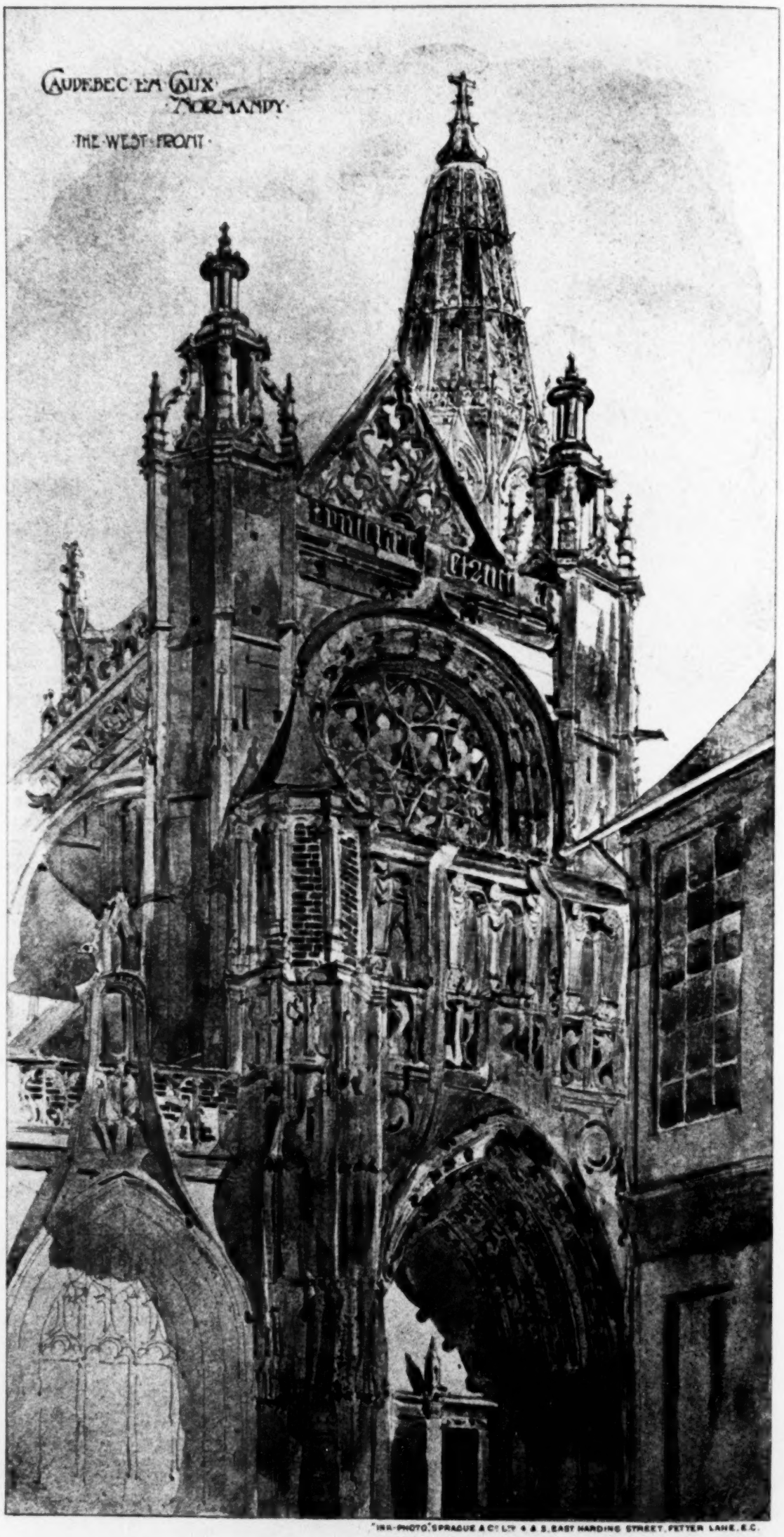

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Pugin Studentship, R.I.B.A., 1902.

"INK-PHOTO" SPRAGUE & CO LTD 4 & 5, EAST HARDING STREET, FETTER LANE E.C.

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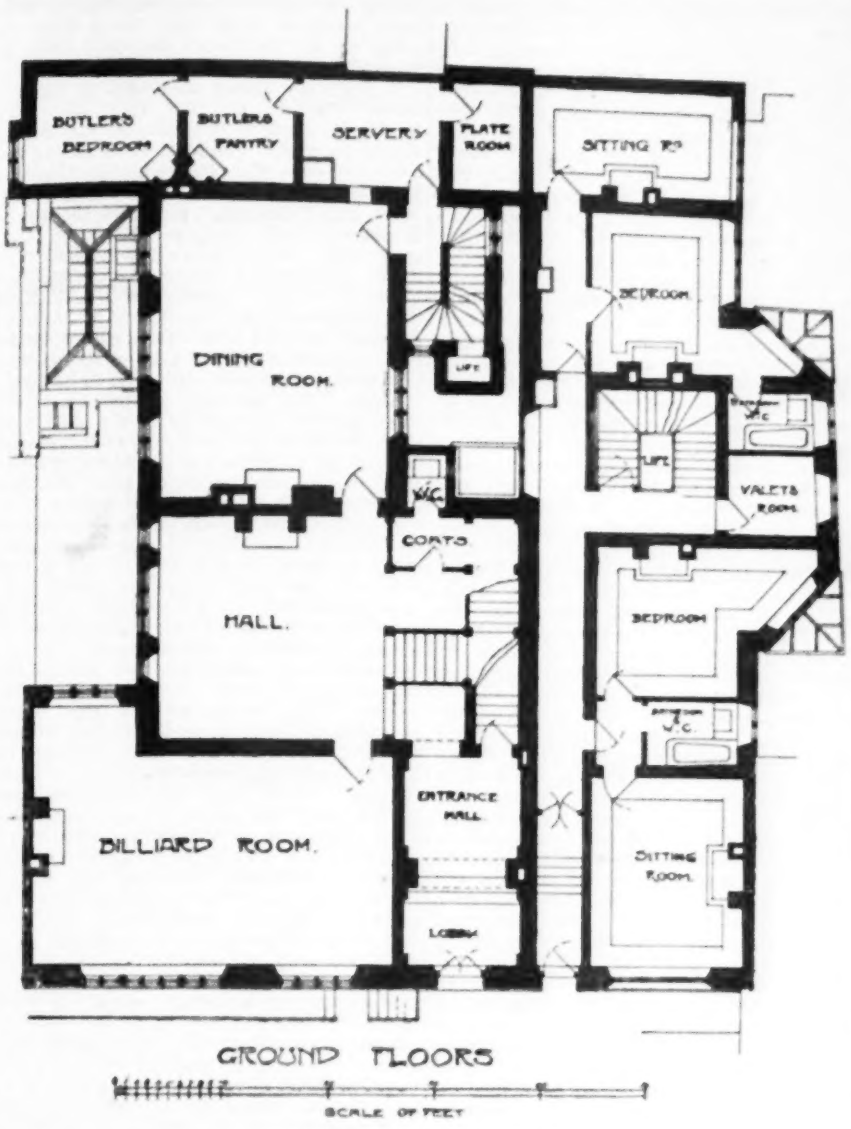


Two London Houses. Plan.

The following is the author's description of the design :—

"In this scheme I have adopted the excellent system existing in some of the most modern German baths, of having a boot-changing room as ante-room to the dressing-boxes, where each bather leaves his boots and receives a pair of indiarubber shoes in exchange ; in this way the soiling of the sides of the pond is obviated. At the end of each set of dressing-boxes a hot and cold douche room is provided. Another advantage is that the competitors in swimming exhibitions would be able to reach the diving end without interfering with spectators at the side. Of course, one knows that in baths, generally, top light is considered the best ; but as the question of light has been carefully considered, and it is ample for all requirements, it was thought that a barrel roof without lights gave a more architectural effect."

WEST FRONT AND TOWER, CAUDEBEC-EN-CAUX.

CAUDEBEC-EN-CAUX is a picturesquely situated town on the banks of the Seine, about midway between Havre and Rouen. The present church, built on the foundations of one that Eudes-Rigaud had dedicated to Saint Marie in 1267, was commenced in the Gothic period and finished in the Renaissance.

The main western entrance, saving some additions, was entirely built in the sixteenth century. It consists of three doorways, the two side ones resembling somewhat those of Saint Maclou at Rouen. The work is very rich, the central doorway having three ranges of statues representing the Saint and the Twelve Apostles.

Although in the early part of last century the church underwent extensive restoration, portions of the west front are still in a very dilapidated condition.

The church contains many interesting and striking examples of the Late Gothic period, and has also some fine stained glass.

C. W. S.

TWO LONDON HOUSES.

THE drawings show the elevations of two houses near Piccadilly. The larger, a town house, is built throughout of Portland stone ; and the smaller, which comprises six sets of bachelor chambers, is built entirely of red brick.

The buildings were erected by Messrs. Simpson & Son, of Paddington, from the designs and under the supervision of Mr. C. J. Harold Cooper, architect.

ARCHITECTURAL SOCIETIES.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—The annual meeting of this Society was held on the 10th inst. at the Lecture Hall of the Philosophical and Literary Society, Mr. T. Winder presiding. The Treasurer's statement of accounts and the Auditor's report showed that although a large expenditure had been incurred during the past year in the furnishing and lighting of the new rooms, there was the satisfactory balance of 64*l.* in hand. A hearty vote of thanks was accorded to the officers and Council for their valuable services during the past year. The fifteenth annual report of the Council stated that the membership numbers 111, consisting of 35 Fellows, 35 Associates, 20 students, 18 lay, and 3 honorary, members. "During the past year," the report went on, "the Highway Committee has prepared for submission to the Local Government Board a new set of by-laws with regard to new streets and buildings. Your Council, acting on behalf of the Society, expressed its willingness to assist the Local Authorities in the framing of regulations tending to the improvement of sanitary conditions and better construction of houses and other erections within the city. As a result, draft copies of these proposed by-laws were sent for the consideration of your council. The proposed alterations and additions to the present by-laws were very extensive, and in many cases impracticable. It was thought that although framed with a desire to promote the erection of better and more substantial buildings, many of the clauses would seriously hamper the design and planning without yielding satisfactory results either from a sanitary or constructive point of view. Your council appointed sub-committees to deal with different portions of the by-laws, and afterwards held several long meetings, at which all the points raised by these committees were discussed. Finally, a conference was arranged with the Highway Committee, and two long interviews took place on October 10 and 14, 1901. At these meetings the whole of the objections and alterations suggested by your Council were discussed in detail, and several matters of a practical nature were left over to be arranged at meetings between the President and Messrs. J. Smith, J. Wigfull, and the City Surveyor. The Highway Committee promised to give careful attention to the points raised by your Council, and also promised that the proposed by-laws as revised should be sent to your Council for consideration ; but up to the present time nothing further has been heard of the matter. The Council hopes that the views placed before the Highway Committee at those meetings will result in a practicable and workable set of by-laws before they are sent to the local Government Board for approval, as otherwise it may be advisable that this Society should place its objections before the Local Government Board. Arrangements have been made for the acquisition of rooms in the premises of the Literary and Philosophical Society, Leopold-street. With reference to the Highway Committee's proposals as to area lights in the footpaths referred to in the last annual report, nothing further, apparently, has been definitely decided by that committee ; but the Council understands that the committee will approve of plans for area lights on condition that the owners enter into an agreement to be responsible for their maintenance and repair." The report was adopted. The ballot for the election of officers resulted in the following appointments :—President, Mr. P. Marshall ; vice-president, Mr. T. Winder ; treasurer, Mr. Fred Fowler ; hon. secretary, Mr. W. C. Fenton ; Council, Messrs. J. Smith, R. W. Fowler, C. Hadfield, E. Holmes, J. B. Mitchell-Withers, H. L. Paterson, J. R. Wigfull (Fellows), C. B. Flockton, C. M. Hadfield, and C. F. Innocent (Associates). The Society's prizes for measured drawings were presented to Mr. G. R. Morris and Mr. D. B. Jenkinson.

WORCESTER DIOCESAN ARCHITECTURAL AND ARCHÆOLOGICAL SOCIETY.—Earl Beauchamp presided at the annual meeting of this Society on the 10th inst. The accounts showed a balance in hand of 44*l.* 14*s.* 1*d.* A communication was received from the Archæological Society offering to support the Worcester Society in any action as to the proposed disposal by the Ecclesiastical Commissioners of Hartlebury Castle, and the chairman thought the letter could lie on the table. As far as he knew there was no intention of making any structural alteration at Hartlebury. When there was it would be time to take action. The hon. secretaries (the Revs. J. K. Floyer and G. H. Poole), the librarian (Mr. A. B. Pinckney), the treasurer (Mr. F. R. Jeffery), and the Auditor (Mr. E. Day) were re-elected. It was proposed by the Chairman that the Bishop should be asked to continue the patronage of the Society by the head of the See, and should be informed of "the intimate relations that once existed between the Society and the authority for granting faculties," leaving it to the Bishop to say whether it would be an advantage for some members of the Society who had archæological knowledge to see the plans submitted for church restoration, in order to prevent vandalism. The Chairman said a great deal of harm was done by excellent and well-meaning people, who in their desire to make churches more beautiful took away something that was beautiful and put in its place some machine monstrosity.

DEVON AND EXETER ARCHITECTURAL SOCIETY.—A paper on the Building By-laws

of Plymouth was read recently by Mr. Arthur S. Parker to members of the Three Towns Branch of the Devon and Exeter Architectural Society, who met in the modelling-room of the Plymouth School of Art. Mr. H. G. Luff, President of the Society, presided. Mr. Parker said that the Plymouth by-laws are largely a copy of the model by-laws of the Local Government Board, with some omissions, and with certain additional regulations. In reference to the modified code recently issued by the Local Government Board, no proper allowance is made for sanctioning temporary iron churches, chapels, or schools, although such facilities are clearly desirable for stated periods to enable congregations to be formed preparatory to the erection of permanent buildings. The isolation of 30 ft. required for exempted buildings of over 15 ft. in height necessitated a larger site than was needed for permanent structures. An isolation of 10 ft. or 12 ft. should amply suffice to satisfy the idea of iron buildings catching fire, instead of 30 ft. The model code in respect to the formation of new streets was inadequate for large towns. The minimum width of 30 ft. generally followed has produced miles of streets throughout England insufficient for modern traffic, including tramways, especially where such streets are main arteries to adjoining districts. The widths have recently been increased in the Plymouth by-laws, but without reference to such streets being tributary or main thoroughfares. In hilly towns, such as Plymouth, the absence of a limit of gradient in the formation of new streets has allowed landowners the liberty of arranging their streets at right angles with the slope of the hill, instead of being laid obliquely to lessen the incline. As streets, once formed, are permanent, the results to successive generations are infinitely more important than the convenience of building owners. It is to be hoped that an alteration of opinion, before many years have elapsed, may cause a less number of sewer ventilators in the main streets, especially in new estates, with further provision for proper elevated shafts. A stone wall 2 ft. 6 in. thick at its base, is required to have a foundation footing at least 5 ft. wide, without reference to the nature of the ground in the district. This by-law was evidently made in London with a clay soil in view, but it was quite unreasonable for a rock district such as Plymouth. The Plymouth by-laws with regard to the walls of a domestic building 25 ft. high are properly set forth, but if the building contain three stories, if it be only an attic in the roof and walls of the same height, yet the whole wall, if in brickwork, is unnecessarily required to be thickened; also if the wall be higher than 25 ft., as necessary in the end walls, the increase is required for two floors instead of one. This regulation adversely affects the cost of small houses for the working classes having two stories with an attic. It is also to be observed that a recently-added regulation in the Plymouth by-laws, not contained in the model code or in most other by-laws, requires that all habitable rooms are to be not less than 9 ft. in height. Although the object may be good—to classify tenement rooms, and especially attics or rooms in the roof with the general rooms—the lecturer held that this was an unnecessary restriction, and it was not even held to be essential in London. The result is that it is now impracticable in Plymouth to utilise the roof space in houses of ordinary span, without the use of a mansard roof for the additional accommodation which could otherwise be provided at a very small first cost. The forming of such rooms is a distinctly practical way of relieving overcrowding. It would in most cases allow provision for the separation of sexes in sleeping apartments. The cost in fitting up attics is clearly small, but roughly one-twentieth of the cost of house and site, whilst adding one-fourth more accommodation. Mr. Parker said it would also be well on the score of economy that modern opening skylights be acknowledged in by-laws. Much thought is given by borough authorities to devise workable schemes for the housing of the working classes, but little thought is given to the removal of hindrances in their own by-laws. Again, walls for an outhouse 5 ft. long by 7 ft. high are required to be 18 in. thick for stone, or 9 in. for brick, by not being separately classed from main structures. The great strengh and economic use of buttresses for strengthening walls is practically ignored in the schedule of wall thicknesses for warehouse and public buildings, notwithstanding the standing proofs in ancient buildings. The by-laws most affecting the vital interests of the town are those relating to the requirements of open spaces at the rear of buildings. Public buildings, warehouses, factories, churches, breweries, and public halls are not compulsorily required to have open spaces, the meaning of this exclusion being that they are not habitable dwellings. The requisition is applied to nominally one class of building, defined as "domestic," but, as a matter of fact, this by-law term includes every other kind of building not of the public building or warehouse class. It therefore includes numerous buildings inhabited to a much less extent than factory buildings, and quite apart from domestic use. These by-laws are not qualified in Plymouth as to the nature of use for which the building is constructed, nor for variations in districts or areas as provided in some towns, nor is there consideration given to buildings abutting on old streets formed before by-laws were made, as provided for in London. Nor is there any equitable rule whereby an efficient air space can be obtained by means which do not unduly damage the value of the site, such as a full width space at the rear above the ground floor of business premises of shallow depth, such as is clearly set forth in the London Building Act. On the contrary, lock-up shops with offices over, re-erected on old sites in the very heart of the town, are required to be treated in precisely the same way as domestic dwellings in Laira or Compton, with an open yard or garden at the rear on the street level, notwithstanding that all the virtues of open space for air can be obtained over shop or ground-floor levels. The consequences are that persons owning property in the chief streets—especially where the site is not of great depth—are unable to rebuild at all without losing one-third or even one-half the ground area of their valuable premises. Consequently restoring and patching the old premises have to be resorted to instead of rebuilding. The street architecture of Plymouth is of a poor character for a town of its size and importance, and there is but limited chance of improvement while the present by-laws remain in force. Four classes of buildings for adopting different methods of obtaining air spaces can readily be defined:—(1) new dwelling-houses, with a proviso for workmen's dwellings; (2) new buildings containing lock-up shops, warerooms, offices, or counting-houses; (3) re-erected buildings abutting on old streets constructed before a given date; (4) stable buildings. The latter are now classified with domestic buildings, and required to have the yard space in the rear, thus involving the provision of two yards, one always being required at the entrance for washing and usual stable purposes, and the unnecessary one at the rear. Each of the four classes of buildings named need classification in respect to air spaces, at the same time maintaining the principles of circulation of air. There is need for public interest and pressure to be brought on the Council to revise certain portions of the by-laws to suit local requirements. In conclusion, Mr. Parker expressed a wish that in some future Act of Parliament the question of damage to ancient lights might be settled by an appointed assessor, when the plans were submitted to local authorities, and before new buildings were erected, so as to avoid the cost and waste of time involved in litigation, and to minimise one of the obstacles to building improvements. A discussion followed, in which Messrs. Littleton, Leest, and Priestley Shires, took part.

CARDIFF, SOUTH WALES, AND MONMOUTHSHIRE ARCHITECTS' SOCIETY.—On the 11th inst. at the South Wales and Monmouthshire Art Society Rooms, Cardiff, Mr. A. G. Legard, H.M. Inspector of Schools, lectured before the Cardiff Architects' Society on the designing and building of schools. Mr. E. W. M. Corbett presided. The lecturer dealt in the first place with the schoolroom, and in this connexion referred with gratification to the fact that opinion was coming round in the direction of smaller classes. The ideal schoolroom for a class of from forty-two to forty-eight should be about 30 ft. long by 13 ft. in height, while the width should be determined by the amount of light available from the windows. Dealing with the question of schools in towns, the lecturer urged that the model town school should have accommodation for not more than about 400 children. Great importance was to be attached to proper ventilation, for the reason that foul air caused children to suffer from lassitude, with the result that they could not do their work properly, while the teachers suffered even more than the children.—The annual dinner was held at the Park Hotel, Cardiff, on the 12th inst. Mr. E. W. M. Corbett (President of the Society) was in the chair. The loyal toasts having been proposed from the chair and duly honoured, Mr. Geo. Thomas gave "Our Pastors, Legislators, and Defenders," to which the Rev. A. Henderson and Captain Dashwood Caple responded. Mr. E. Seward submitted "The Royal Institute of British Architects," with which he coupled the name of Mr. W. Emerson, President of the Institute. Mr. Emerson had just returned from India, where he had been summoned by Lord Curzon for consultation upon the Queen's memorial to be erected in India. Mr. Emerson, in the course of a short address in response to the toast, urged upon architects the desirability of combination through the Institute and its allied branches. England was behind every other European country in the education of architecture, and one of the chief objects of the Institute and its members should be to educate the public in its appreciation of what was best in architecture. They wanted, also, to educate architects themselves to have some self-respect and *esprit de corps*, especially upon the burning question of competitions. All sorts of competitions were started by public bodies nowadays, and many of them were grossly unfair. There seemed to be a large number of architects ready to rush into any competition, and they made their work so cheap that they seemed to be ready to cut one another's throats. While they did that they could hardly expect the public to value their work as it ought to be valued, nor was it to be wondered at if public bodies expected them by these competitions to turn out their work as if they were machines. Architects should not enter competitions unless those asking for them were prepared to pay a proper fee for each set sent in. Another matter that the Institute had under consideration was the appointment of assessors, whose assistance in competitions had been valuable. Architects suffered a great deal from rush of work. They wanted more time for reading and study. They ought to spend more time in this way, and to learn the lessons that were available in nature—in the colours, in the flowers, in the valleys, and in the hills. They ought to aim at a love of the beautiful. If they did that they would no more sit down and design some of the things to be seen in the streets of large towns than they would design a warehouse and call it a palace.—Dr. C. T. Vachell proposed "The Cardiff, South Wales, and Monmouthshire Architects' Society," with which he coupled the name of the chairman. In the course of his remarks he said that he wished architects would not design the horrible little grates sometimes found in bedrooms. They ought to remember that in cases of sickness it was sometimes necessary to have a fire in the bedroom all night, but many of the grates held fires that would not last two hours.—Mr. E. W. M. Corbett hoped that the effect of the visit by the President of the Institute would be to lead local members to take more interest in the Society. Architects ought to realise the value of combination, especially as there was a section of the public that dabbed in bricks and mortar and became a source of possible difficulties. "The Local Governing Bodies" was proposed by Mr. J. Carter Coates, and responded to by Alderman David Jones. Mr. F. R. Kempson gave "The Master Builders," to which Mr. George Couzens replied.

ARCHITECTURAL ASSOCIATION OF IRELAND.—The annual dinner of the Architectural Association of Ireland was held at the Grosvenor Hotel. Mr. C. J. M'Carthy, City Architect, presided. The toast of "The King" having been duly honoured, the Chairman proposed the toast of "Our Guests," coupling with it the names of Mr. Rawson Carroll, Mr. Pile, and Mr. George Coffey. All three gentlemen replied, and Mr. W. Pile, speaking on behalf of the Master Builders' Association, said he condemned the importation of strangers into Dublin to do the work of architects and builders which could have been done as satisfactorily by men belonging to their own city. Mr. J. Rawson Carroll, in proposing the toast of "The Architectural Association," said the senior members of the profession had every reason to be proud of the Association. Their Association had the thorough support of the

Institute of Architects. In his opinion the public were realising the position of the architects now better than they had heretofore, and the Association might, therefore, look forward with hope to the future. The Chairman, in expressing thanks on behalf of the Association, said that although the Association had been only six years in existence it had had a fair measure of success, and had done much for the advancement of the profession.

ARCHÆOLOGICAL SOCIETIES.

SOCIETY OF ANTIQUARIES OF SCOTLAND.—The usual monthly meeting of this Society was held in their library, at the museum, Queen-street, on the 14th inst., Mr. Robert Munro, M.D., LL.D., in the chair. The first paper was a notice of the heraldry in some of the old churchyards between Tain and Inverness, by W. Rae Macdonald, F.S.A., Scot. Beginning with the burial slabs in the roofless ruin of the ancient church beside the old Collegiate Church of Tain, two of which show shields of arms of the family of Ross, he next noticed the tomb of Finlay M'Leod, Abbot of Fearn, in the Abbey Church of Fearn, which has still the effigy of the Abbot under an arched and decorated canopy, with a shield in the centre bearing his arms, and two smaller defaced shields at the sides. Near the centre of the north wall of the church is a shield with lion rampant, and at the east end a Balnagoun monument of the eighteenth century. At Nigg, besides the Celtic sculptured stone, there is a recumbent slab with a Gothic cross and sword, which has been used a second time for a shield of arms of Alexander Gair, 1659. At Invergordon Castle is the fine Celtic slab from Hilton of Cadboll, which was also utilised a second time for an inscription on one side commemorating Alexander Duff and his three wives, 1676, with a shield of arms. In the churchyard of Gilchrist, near the Muir of Ord, is a stone with some unusual mortuary devices, and at Killearnan a mural tablet with arms of the Mackenzies of Muirtown. In Kilcoy Castle is the sculptured heraldic mantelpiece of the hall, the decoration of which consists of three shields of arms enclosed by circular bands on which the mottoes are incised, while at either end is a mermaid playing on a harp. The arms on the shields commemorate certain marriages in the family, and the date is 1679. Several shields of arms also occur among the external decorations of the castle, and in the drawing-room there is an interesting oak cabinet with heraldic decoration, which is said to have been carved by Master Alexander Mackenzie. Against the garden wall is a large heraldic panel, said to have been brought from the Bishop's Palace, Fortrose, bearing the full achievement of Scotland and the arms of Bishop James Hay, 1537. At Redcastle there are several heraldic sculptures, one of which is interesting as resembling the arms of Finlay M'Fead, Abbot of Fearn. At Fortrose are three canopied tombs and several stones with interesting heraldic sculptures, which, as well as those at Rosemarkie, were fully described. In the second paper Mr. John Fleming gave a notice, illustrated by photographs, of a well-preserved stone-built fort near the Mull of Kintyre. It is a circular structure, massively built, and situated on a rocky knoll overlooking the sea, and fully 300 ft. above the shore, while it also overlooks a glen called Borgadaill—doubtless so named after the fort. The circular wall, which is about 12 ft. thick, encloses an area of about 36 ft. in diameter, and still stands to a height, in some parts of its circumference, of 7 ft. or 8 ft., though the inside level is higher, and the wall nowhere shows more than about half the height of the outside. The doorway is on the north-west, and is about 3 ft. 6 in. wide at the outside and about 1 ft. wide at the inside face of the wall. There are no signs of chambers in the thickness of the wall, but there are apparent traces of buildings within the enclosed area. In the third paper Mr. Thomas Ross, architect, F.S.A.Scot., gave a description of four stones found at various places in the neighbourhood of Auchterarder, which appear from their similarity of subject to belong to one group, their common characteristic being that they represent riders in chariots drawn by horses, leopards, or other animals. The best preserved example belongs to Mr. A. Drummond Forbes, Millearn House, and is inscribed Luna, with the personified representation of the moon in her chariot. Another well-preserved example, which is in the Perth Museum, appears to have had a similar personification of the sun; while a fragment in the same museum shows a mutilated head with the inscription "Mercurius"; and at the ruins of Auchterarder Castle there is a stone, rather wasted from exposure, but still distinct enough to show that it belongs to the same class of representations. In the next paper, Dr. Christison, secretary, gave a notice of an unrecorded fort and a stone circle at Wester Torrie, near Callander, Perthshire. The fort is situated in the parish of Kilmadock, below the junction of the Keltie with the Teith, and close to the south bank of that river. In the last paper, Mr. James Barbour, F.S.A.Scot., gave an account of the excavation of a quadrangular earthwork with rectilinear sides and rounded corners at Rispain, in Wigtownshire, which is locally known as Rispain Camp, and had the reputation of being a Roman camp.—*Glasgow Herald.*

BOOKS RECEIVED.

A HANDBOOK OF HYGIENE. By Colonel A. M. Davies, M.R.C.S., &c. Second edition. (C. Griffin & Co.)

THE BASES OF DESIGN. By Walter Crane. New edition. (George Bell & Sons. 6s.)

THE HEALTH OFFICERS' POCKET-BOOK. By E. F. Willoughby, M.D. Second edition. (Crosby Lockwood & Son. 10s. 6d.)

LIGHT AND AIR. By the late Professor Banister Fletcher. Fourth edition, revised. (B. T. Batsford.)

THE PREVENTION OF DAMPNESS IN BUILDINGS. By M. J. Salter, F.I.C., F.C.S. (Scott, Greenwood, & Co.)

THE BUSINESS ENCYCLOPÆDIA AND LEGAL ADVISER: ABA to CON. By W. S. M. Knight, Barrister-at-Law. (Caxton Publishing Co. 7s. 6d.)

OUTLINE OF THE LAW RELATING TO WORKMEN'S COMPENSATION ACTS 1897 and 1900. By William Bowstead. (Simpkin Marshall, & Co. 1s.)

PATTERN-MAKING: A PRACTICAL TREATISE. By Joseph G. Horner, A.M.I.M.E. Third edition. (Crosby Lockwood & Son.)

Correspondence.

RE INSTITUTE OF BUILDERS AND CONDITIONS OF CONTRACT.

SIR,—The attention of the Council of this Institute has been called to a paragraph in your issue of the 22nd ult., under the heading of "Notes"—"Form of Building Contract," and as they consider the statements contained therein misleading they ask that you will give the same publicity to the following observations.

The Council suggest that it would have been fairer if you had printed the Institute Annual Report *in extenso*, instead of simply making a reference to a statement contained in it.

The writer of the "Note" has entirely misunderstood the objects and intentions of the Council, who recognise quite well the inconvenience and trouble which might arise if the architect were not, during the progress of the works, to have full control in regard to workmanship and materials, and are quite willing it should be so; but that being conceded, they contend that it is only just that the architect must take the responsibility of what he does in this direction, and if he acts unjustly the builder must have his remedy. This, however, he is effectually deprived of by exempting Clause 16 from the consideration of the arbitrator, as decided by the architects at the general meeting in December, 1900, and which appears to meet with the unqualified approval of the writer of your "Notes." If the Arbitration Clause in the Form of Conditions now issued by this Institute is referred to it is quite clear that the contractor cannot do as you say—*i.e.*, bring in the arbitrator upon every trifling dispute between the architect and himself during the progress of the works.

Provision, however, is made so that if the arbitrator has to determine, at the completion of the contract, whether the builder in this respect has been put to extra cost beyond the cost properly attending the carrying out the contract in accordance with the plans and specification, he (the arbitrator) shall have an opportunity of seeing for himself, at the only time it is possible for him to do so, whether the claim is a reasonable or proper one or not.

There is a third party, not referred to in the "Note" in question, viz., the employer, and this fact should not be overlooked. The Council are content to rely on the principles of equity in settling the terms of a contract, without reference to the possibility or probability of dishonesty on the part of any one of the parties interested.

THOMAS COSTIGAN.
Secretary, Institute of Builders.

*** We print the letter of the Institute of Builders, but we deny that there is any misrepresentation. What the builders want is that they are to bring in another man to look at materials which the architect has condemned, with a view to giving judgment afterwards that they ought not to be condemned. Some builders go further than this; they would like to arbitrate everything on the spot; we have no doubt of what we are saying, as we have been told so by a large contractor. This kind of insidious attempt to overset the architect's authority ought in our opinion to be resisted by architects in the firmest manner. The architect was formerly master on his building; the builder now wants to be master, and that just at a time when, owing to the system of pricing and estimating from highly elaborated Quantities, contractors are tending more and more to cease to be builders in the true sense, and to become only building financiers. So far from modifying or withdrawing our expressions, we desire only to repeat them with the greater emphasis.—ED.

NEW MALDEN MUNICIPAL BUILDINGS COMPETITION.

SIR,—No doubt your readers, and particularly the competitors, will be interested in the enclosed cutting from the *Surrey Comet* of the 5th inst. What is the profession coming to?—

"PLANS FOR THE OFFICES.

Letters were read from five selected architects, offering to prepare designs for the proposed public offices, at fees ranging from forty to sixty guineas. After discussion, it was decided to make further inquiries from three of the architects."

ACETYLENE.

The Student's Column.

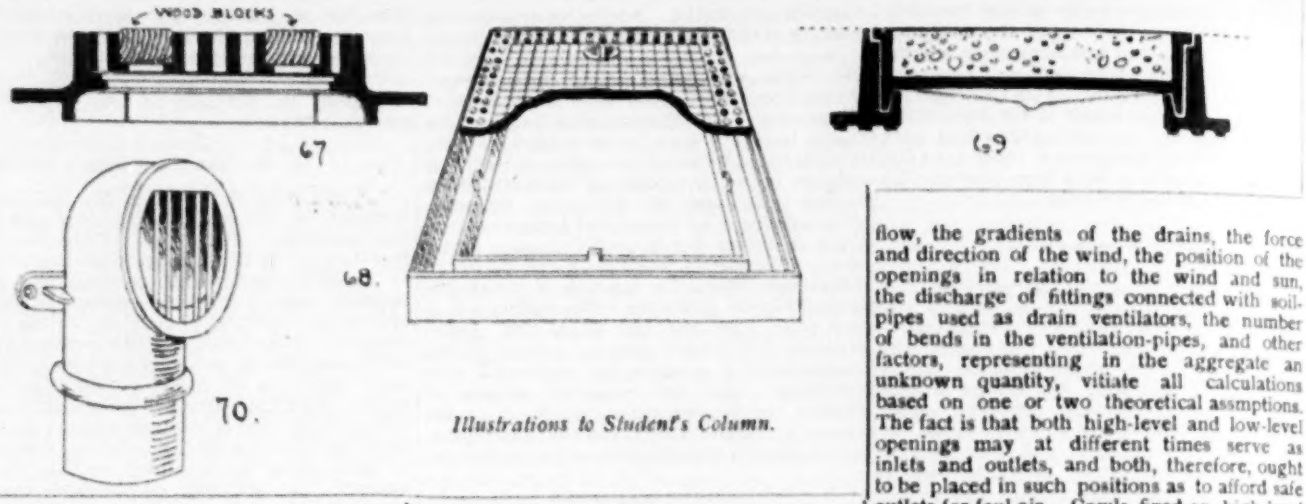
PART II.—DRAINAGE.

CHAPTER 14.—MANHOLE COVERS AND VENTILATION.

MANHOLE COVERS.—Manholes are sometimes covered with slabs of stone, but these are somewhat difficult to take up and replace. Iron covers are much more convenient, and are now generally used. In shape they may be round, oval, square, or oblong. The sizes range from 6 in. in diameter for lampholes or pipe-shafts to about 3 ft. by 2 ft. for large manholes. There are two principal classes of covers—ventilating and air-tight. Unless other means of ventilation are provided, as shown in fig. 43, ventilating covers must, as a rule, be fixed over intercepting chambers, whether these are on the main drain or on the branch drains. Where the high-level opening for ventilation is carried up from the intercepting chamber, the cover of this chamber must be airtight, and a low-level opening must be provided near the head of the drain, either by means of a ventilating cover on a manhole or by a grating on a pipe communicating with the drain. The manhole covers on long outfall drains ought to be of the ventilating type. Except in the cases mentioned, the covers ought to be airtight.

The simplest form of ventilating cover is a perforated slab of cast-iron fitted into a rebated stone curb. Instead of the stone curb, an iron frame may be used. The frame ought to be of sufficient depth to allow the surrounding paving to rest on the flanged base, but not in any case less than 3 in. Hinged grates are often used. For roadways, heavier grates are required; fig. 67 shows a common type for sewer-manholes in streets. A dirt-box of galvanised iron may be hung under a perforated cover to prevent sand and other objectionable refuse from entering the drain. In Jones's ventilating manhole-cover (fig. 68), the air-openings are near the rim, and a channel is formed in the frame to receive any dirt which may drop through them.

Airtight covers are of various kinds. As a rule the cover has one or more projecting rims around the lower margin, which fit into corre-



Illustrations to Student's Column.

sponding grooves in the iron frame, as shown in fig. 43. The grooves ought to be filled with Russian tallow; fine sand is sometimes used, but is not as satisfactory. Jones's airtight cover is on the same lines as his access cover for pipes (fig. 65), and has an outer and inner cover; the former fits into the grooved frame in the manner already described, while the latter is arched so that the moisture condensing on it will trickle down to the deep groove in which it rests and form an airtight seal; sand may be placed in this groove, so that a perfect seal may be obtained with a small quantity of water. The depth of seal varies in different covers, but ought never to be less than 1 in. Sometimes the flanged rim of the cover plate rests on a rubber cord placed in a groove of the frame, but such covers cannot be trusted to remain airtight for any long period.

Covers, both airtight and ventilating, are now made with recessed tops to receive concrete, wood-blocks, asphalt, or other flooring material, and are very suitable for use inside buildings, where a large area of ironwork would be unsightly, and in carriage-drives, where the iron might not afford proper foothold for horses. An example is given in fig. 69. It is often desirable to fasten the covers in some way, so that they cannot be removed by unauthorised persons. A simple method consists in securing the cover to the frame by means of gun-metal screws.

Ventilation.—Adequate openings for the inlet and outlet of air are required in drains in order that emanations from the sewage may be diluted and carried away without loss of time. Experiments have shown that foul gases may be absorbed by the water on one side of a trap, and given off again on the other side. In badly-ventilated drains foul air may be forced through the water of a trap when a sudden increase of the volume of sewage occurs, as, for example, during heavy rains. In a similar manner, sewer air may be forced through the intercepting traps of drains. For these reasons, adequate ventilation, not only of main drains but also of long branches, is necessary. In large systems the drains must be divided into sections by means of intercepting traps on the principal branches (see fig. 42), each section being separately ventilated. In small systems, two openings for ventilation will suffice. One of these must be at or near the intercepting trap on the side furthest from the sewer (figs. 41, 43, 64, &c.), and the other must be as near the head of the drain as possible.

The requirements of the Model Urban By-laws may be thus summarised:—

Normal Arrangement.—One opening must be provided at or near the ground level, and must communicate with the drains "by means of a suitable pipe, shaft, or disconnecting chamber" as near as practicable to the intercepting trap, and on that side of it which is nearer to the building. The second opening must be placed "as far distant as may be practicable" from the first, and must be at the head of a vertical pipe or shaft carried up "to such a height, and in such a manner, as effectually to prevent any escape of air from such pipe or shaft into any building in the vicinity thereof, and in no case to a less height than 10 ft."

Alternative Arrangement.—If the normal arrangement is impracticable, the low-level opening may be placed near the head of the drain, and the high-level opening near the intercepting trap.

In either case, each pipe or shaft must be of a sectional area not less than that of the drain with which it communicates, and in any case not less than the area of a 4-in. pipe, and must be furnished with "a suitable grating or other suitable cover," the apertures in which shall have an area not less than that of the pipe or drain. Bends must not be formed in the air-pipes or shafts "except where unavoidable." "The soil-pipe of any water-closet, in every case where the situation, sectional area, height, and mode of construction of such soil-pipe shall be in accordance with the requirements applicable to the pipe or shaft to be carried up from the drains, may be deemed to provide the necessary opening for ventilation which would otherwise be obtained by means of such last-mentioned pipe or shaft."

The Model Rural By-laws although differently expressed, are to the same effect, with the exception that, where a pipe or shaft communicates with a 4-in. drain, "the sectional area of such pipe or shaft may be not less than 3½ in." The words "sectional area" are clearly a mistake for "diameter," the intention undoubtedly being to sanction the use of a 3½ in. soilpipe as a drain-ventilator. A proviso is, however, inserted in the Rural By-laws that (1) no ventilation need be provided for a drain not more than 20 ft. in length, "where there is no water-closet within the building, and connected with the drain," and (2), "where the aggregate length of so much of the drain or drains of a new building, as is above the [intercepting] trap. . . . . shall not exceed 30 ft., and such drain or any of such drains shall not be connected with any water-closet which has internal communication with any building, the opening required by this by-law to be provided at or near the level of the surface of the ground may be dispensed with."

The London drainage by-laws specify three arrangements, the first and second being similar in the main to those described in the Model Urban By-laws, and the third having the two openings at the tops of vertical pipes or shafts. In the first and second arrangements the low level openings must be "*above and near* the level of the surface of the ground," and not "at or near," as in the Model By-laws; and in all the arrangements every high-level opening must be at such a height and in such a position as to afford "a safe outlet for foul air." Soil-pipes from water-closets and slop sinks may serve as drain-ventilators, if the situation, sectional area, height, and mode of construction are suitable, and in any case a soil-pipe 3½ in. in diameter shall be deemed to provide adequate ventilation for a 4-in. drain. If separate ventilation pipes are necessary, they must be constructed "in the same manner and of the same material and weight" as soil-pipes.

Experience has falsified many of the theoretical assumptions on which the practice of drain ventilation was at one time based. The principal assumption was that a low-level opening would usually, if not invariably, serve as an inlet, and a high-level opening as an outlet; but in drains, as in houses, there are so many disturbing influences at work that the assumption can only be regarded as misleading. Numerous experiments on drains and sewers have proved this. The relative temparature and humidity of the sewer air and of the external air, the direction of flow of the sewage, the increase and diminution of the flow, the gradients of the drains, the force and direction of the wind, the position of the openings in relation to the wind and sun, the discharge of fittings connected with soil-pipes used as drain ventilators, the number of bends in the ventilation-pipes, and other factors, representing in the aggregate an unknown quantity, vitiate all calculations based on one or two theoretical assmptions. The fact is that both high-level and low-level openings may at different times serve as inlets and outlets, and both, therefore, ought to be placed in such positions as to afford safe outlets for foul air. Cowls fixed on high-level openings do not materially alter the conditions, and may be regarded as unnecessary; a copper wire guard to prevent the ingress of birds and leaves is all that is required.

Low-level openings must, according to the London Drainage By-laws, be "above and near the level of the surface of the ground." Ventilating manhole-covers are therefore inadmissible, and a pipe must be carried up from the intercepting chamber and finished with a grating a few inches above the ground. The apertures in the grating must be equal in area to the cross-section of the drain. Fig. 70 shows a cast-iron ventilator with brass front. Sometimes mica flaps are placed behind the grating, and are hung at the top or sides in such a manner that they open when the current of air is into the drain and close under back pressure. The flaps are unnecessary unless the ventilator is near a door or window.

In the old by-laws of the L.C.C. it was specified that the open end of a soil-pipe must "in all cases be above the highest part of the roof of the building to which the soil-pipe is attached, and, where practicable, be not less than 3 ft. above any window within 20 ft. (measured in a straight line) from the open end of such soil-pipe," but these provisions are wisely omitted from the new by-laws. To carry a ventilation-pipe above the highest point of a roof involves in many cases a number of bends sufficient to prevent almost entirely the flow of air under normal circumstances. Certainly it is not desirable to terminate a drain ventilating-pipe near to and below a window, but in small drainage systems, properly designed and maintained in good condition, the drains ought not to give off any fouler emanations than those arising from the gully under a sink-waste. Ventilation-pipes ought not to terminate under projecting eaves or gables, nor ought they to be used as rain-water pipes.

Cast-iron ventilation-pipes soon corrode; the rust in many cases accumulates at the foot and chokes the pipe. Rust-pockets ought invariably to be fixed at the feet of such pipes. They are not required if the pipes are of lead.

OBITUARY.

M. COQUART.—M. George Ernest Coquart, the French architect, has died at the age of 71. He obtained the Prix de Rome in 1859 with a design for a Hôtel for invalided sailors. He was a pupil of Hippolyte Lebas, and became successively Secretaire des Bâtiments, professor at the Ecole des Beaux-Arts, and member of the Institut (in 1888) in place of Questel. He was the designer of the beautiful monument to Henri Regnault at the Ecole des Beaux-Arts, working in collaboration with M. Pascal. He designed also the monument of the Défense Nationale at Père Lachaise, the fine installation of the Cour de Cassation, and the monument to Rougevin, erected in the vestibule of the Ecole des Beaux-Arts. Coquart was an artist in the highest sense of the word; he had, like his countryman Charles Garnier a natural feeling for form and colour, and his instruction at the Ecole des Beaux-Arts was much sought after. He was also an accomplished draughtsman and water-colour artist, and exhibited with success at annual Salons.

MR. J. J. HENDERSON.—We regret to record the death of Mr. John J. Henderson, of Dundee. He was born in Dundee, and educated at the Madras College, St. Andrews. His training as an architect and civil engineer was obtained under the late Mr. Charles Ower, Harbour Engineer, Dundee. He was twelve years in the municipal engineering ser-

vice of Dundee, Leeds, and Lincoln, and about twenty years ago started business on his own account in Dundee. On many occasions he contributed to the proceedings of the Dundee Institute of Architecture, of which he was hon. secretary for many years. From 1894 to 1897 he served as a Town Councillor, and in 1900 he was again returned to office. In November last he was elected one of the magistrates of the burgh. He was also a Justice of the Peace for the county of Fife.

GENERAL BUILDING NEWS.

NEW MISSION HALL, WESTBOURNE PRESBYTERIAN CHURCH, BELFAST.—The mission hall erected in connexion with Westbourne Presbyterian Church, Belfast, has just been opened. Situated in Cuba-street, facing the Newtownards-road, the hall is built of brick, the style being Gothic. It contains a hall (with seating accommodation for 250 people), cloakroom, and kitchen. The plans were prepared by Mr. John Frazer (Messrs. Frazer & Son), and the building operations carried out by Mr. R. Hewitt, under the personal superintendence of Mr. Robert Black.

NEW U.F. CHURCH, BURNTISLAND, FIFE.—Plans for the erection of a new church for the Erskine United Free Church congregation were approved of by the Dean of Guild Court recently. The design, which was prepared by Mr. J. B. Wilson, architect, Glasgow, comprises a church which will seat fully 500 persons, a hall to accommodate 100, a session-house, a vestry, and a heating-chamber. The site for the new building is a prominent one at St. James's Park. The building will cost about 5,500*l.*, and the successful contractors for the work are:—Masons, Messrs. White & Son, Lundin Links; joiners, Messrs. J. C. Burns & Co., Larkhall; slater and plasterer, Mr. James Williamson, Burntisland; plumber, Mr. James Goodlet, Glasgow; glazier, Mr. James Miller, Glasgow.

CHURCH EXTENSION, YORK.—The chancel of the new Church of St. Luke's, for the district of Burton-lane, has just been consecrated. The church, which is eventually to consist of a nave and chancel, under one continuous vaulted roof, 113 ft. long by 22 ft. wide, has to be built in sections, and it is the first portion which has been consecrated. Mr. Brierley, of York, is the architect, and it is estimated that the completed building will cost 8,000*l.*, and will accommodate 800 worshippers. The section which has been completed consists of the vestries, chancel, and aisles, which will accommodate 300, with a temporary west end which can be taken down when the remainder of the work is proceeded with.

WESLEYAN CHURCH, WALSALL WOOD.—The opening ceremony in connexion with a new Wesleyan Church which has been erected at Walsall Wood took place on the 10th inst. The structure, which has been designed by Mr. C. W. D. Joynson (Wednesbury), has been erected by Mr. W. T. Lees (Darlaston), while the stained-glass windows have been supplied by Mr. B. Jones (Walsall). The length of the building is 57 ft., and the width 39 ft., with a seating capacity of nearly 400. Access is gained by a vestibule which extends the whole length of the building, and included are a vestry, orchestra, and classrooms.

WESLEYAN CHURCH, COTGRAVE, NOTTINGHAM.—A new Wesleyan church was opened at Cotgrave on the 10th inst. The building is capable of accommodating upwards of 200 persons, and the architect was Mr. A. E. Lambert, and the builder Mr. T. Barlow.

ST. MICHAEL'S CHURCH, BRISTOL.—Mr. W. V. Gough is appointed superintending architect for the reparation of the tower of the church, which, rising in four stages from the ground, has an embattled parapet with pinnacles, and carries an octagonal turret, and a spirelet capped with a vane. The church presents a combination of the Perpendicular and Classic styles, for the chancel, aisles, and nave were rebuilt in 1775-7, after the mode in vogue at the time. About 1,200*l.* will be expended upon the new work.

PROPOSED CONVOCATION BUILDINGS, YORK.—A request will shortly be made to the twenty-four Archdeacons in the Northern Province to form committees of the members of the Lower House of Convocation and of the House of Laymen resident in their Archdeaconries, to raise the needful funds for adapting the ancient St. William's College, York, into a permanent House for Convocation. The architect of the proposed work is Mr. Temple Moore, of London.

INFANT SCHOOLS, HOWE BRIDGE, MANCHESTER.—These new schools were opened on the 1st inst. They have been built to the south-east of the old block, and provide accommodation for about 300 children. The new building is of one story, and consists of a large schoolroom, 54 ft. by 24 ft., a babies' room, 24 ft. by 21 ft., and two classrooms, 19 ft. by 24 ft. and 22 ft. by 24 ft. respectively. The smaller of these classrooms is so arranged that it may be used for babies should the babies' room be at any time overcrowded. A central corridor, 62 ft. long by 9 ft. 6 in. wide, gives access to all these rooms, and also serves for the children's marching and drilling. The architect for the new buildings is Mr. Isaac Taylor, of Manchester, under whose supervision the contract has been carried out by Mr. Thomas Scott, of Manchester.

SUNDAY SCHOOLS, ROTHERHAM.—On the 3rd inst. memorial-stones of the new Sunday Schools of the Eastwood Wesleyan Chapel, Rotherham, were laid. The site is in Fitzwilliam road. The new buildings, which have been designed by Mr. John Wills, architect, of London and Derby, will when completed adjoin the present chapel, to which they are connected by a covered way. The scheme includes an assembly hall, 65 ft. by 50 ft., with infants' room, 22 ft. by 18 ft., church parlour, 26 ft. by 18 ft., classrooms, &c., providing accommodation for 650 scholars. The front is to be of rock-faced York stone with ashlar dressings, the sides and rear being of brick. The front gable will contain a triple window and be flanked by buttresses carried up, and finished with octagonal pinnacles. The two main entrances will be right and left of the front, each having porches and lobbies. The cost of the work, exclusive of land and architect's fees, is estimated at 2,700*l.* Mr. Richard Snell, of Rotherham, is the builder.

SCHOOLS, SOUTH NORWOOD.—New schools have just been erected at South Norwood. The site has frontages to Sandown and Oakley-roads, leading off the southern or Woodside end of Portland-road, South Norwood. The present accommodation is for 1,310 children:—420 boys, 420 girls, and 470 infants. The infants' school is a one-story building, and comprises a central hall 63 ft. by 30 ft., eight classrooms, two caprooms, and three entrances, with a teachers'-room, which will be available as a committee-room. The boys' and girls' school is a two-story building, the boys on the ground floor, and the girls on the floor above. Each department comprises a central hall 79 ft. by 32 ft., with a class for children at each end of the hall, and five classrooms for 60 each, two caprooms, a teachers'-room, store and two entrances; and the upper floor is approached by two staircases, thus providing alternative exits in case of emergency. Each department has a lock-up store with sink, and hot and cold water for the use of the caretaker, and in each of the two towers a small dinner-room is provided, one for boys and one for girls who do not go home in the middle of the day. The upper floor is constructed of steel girders and concrete. The external walls are built hollow 16 in. thick, faced externally with red Leicestershire bricks and Darley Dale stone dressings; the roofs being covered with red Staffordshire tiles. Internally the walls are lined dado high with glazed bricks, and the upper part rendered in cement and coloured with a washable distemper. The woodwork is of Carolina pine stained and varnished. The caprooms are lined their full height with buff-coloured glazed bricks, and each provided with a marble lavatory trough. Incandescent gas lighting is provided throughout the halls and classrooms with a special burner introduced by Messrs. Wm. Sugg & Co., of Westminster. The whole of the buildings are warmed from one central boiler-house under the large school by low-pressure steam working at about 2 lbs. Messrs. Korting Bros., of London, are responsible for this work. The builder's contract for the whole of the work amounts to 17,800*l.* Mr. E. J. Saunders, of Croydon, was the builder. Mr. T. W. Tester has acted as clerk of works. Mr. Carter Pegg was the architect.

BLACKPOOL BOARD SCHOOL.—A new Board school has been opened in Central-road, Blackpool. This school is the first of its kind to be erected in Blackpool. The building is of two floors, with a marching corridor 12 ft. wide in the centre of each floor, having the classrooms grouped round it and entering directly from it. The class and school rooms provide accommodation for 1,047 children, and in all except two cases the scholars will have windows on their left side. The cookery classroom is in the main building. The four cloakrooms are entered from the corridors. Large dry stores are provided in the roof. At the west end of the site a manual instruction and laundry block is placed, while between that block and the main building are the conveniences for the scholars, and the covered playsheds. The playgrounds are covered with tar-paving, and the whole surrounded with an iron railing, the playgrounds for the boys and the girls being separated by a brick wall. The main building is heated by low-pressure hot-water apparatus, and the ventilation is effected by three electric fans placed in the roof. The buildings are of brick with stone dressing round the entrance, and the main contract has been carried out by Messrs. Jacob Parkinson & Sons, of Blackpool. The heating and ventilation are by Messrs. J. G. Wagstaff, Limited, of Manchester. The structure has been erected from the designs and under the supervision of Messrs. Anderson, Simon, & Crawford, of Edinburgh, and under the inspection of Mr. Caleb Place, clerk of works to the School Board, and Mr. Frank Place, assistant clerk of works. The cost, including furnishing and street-making, will be about 18,000*l.*

BOARD SCHOOL, DEVONPORT.—The Victoria-road School, which the Devonport Board has recently built for the St. Budeaux district of the borough, was opened on the 7th inst. The school will accommodate 900 scholars. It is situated on a site adjoining Trelawney-avenue, off Victoria-road, and consists of two stories. The ground floor will be set apart for the infants, and the first floor will be a mixed school. The building has been constructed from designs prepared by Messrs. Hine & Odgers, of Plymouth. The cost of the school is close upon 11,000*l.* There are ten classrooms, with two cloakrooms on each floor. Mr. W. Blake was the builder, and Mr. G. Sleeman acted as clerk of works, with Mr. W. Efford as foreman. Baylis's system of ventilation has been used throughout the building, which is warmed by the high-pressure system of heating, fitted by Messrs. Longbottom, of Leeds. The walls outside are faced with selected local red brick, and the roof is covered with Delabole slate.

CHANCEL SCREENS, ST. OLAVE CHURCH, EXETER.—A rood screen, together with a parclose screen, have just been erected at this church. The new screens are constructed entirely of Devonshire-grown oak. The chancel screen itself is divided into five openings, the central one forming the entrance into the chancel, whilst the lower portions are so arranged that no obstruction exists that might preclude worshippers from any part of the building getting a full view of the altar. The portion over the central approach is gabled up considerably above the sides, terminating in a large cross. Upon raised pedestals at the foot of the central gable are sculptured figures of angels. The work has been carried out by Messrs. Harry Hems & Sons, of Exeter.

A NEW LONDON WORKHOUSE.—The new Greenwich Union Workhouse at Grove Park, Kent, was on the 9th inst. formally taken over by the Greenwich Board of Guardians. The new buildings are situated in open country, and may be described as a Poor Law village. The 10 acres upon which they stand cost the Guardians 4,000*l.*, and the contract for the buildings was let at 175,020*l.* There are twenty blocks united by covered ways, and they provide accommodation for 816 inmates (apart from officers and staff) of the aged and able-bodied classes. The central buildings include the front block, which consists of board-rooms and offices and quarters for the masters, matrons, and the staff. There are two dining-halls, one for 500 aged, and the other for 300 able-bodied inmates, divided for the sexes by movable partitions. The kitchen and scullery, which communicate with the halls, are fitted with steam and gas cooking appliances. A chapel has been built which will seat 400 inmates, and there is a laundry, a bakery, and a store. The pavilions for the inmates are grouped to the right and left of the central buildings, and some are placed at the back. Each pavilion contains accommodation for eighty or 100. The dormitories on the first and second floors contain two rows of beds in the place of the old system of four rows with a central partition. The rooms are of varying sizes to admit of classification. In the pavilion for married couples there are separate bedrooms and a common dayroom, with a small scullery and larder. The other buildings include workshops with hand corn-grinding mills for the able-bodied, and all the buildings are heated by hot water in addition to subsidiary open fire-grates, and are lighted by electricity. The builder was Mr. T. Rowbotham, of Birmingham, and the architects were Messrs. T. & J. Norman Dinwiddy. The whole of the institution is lighted by electricity. The engineering work has been carried out by Messrs. Moorwood, Sons & Co., Ltd., of Sheffield and London; the electric lighting by Messrs. H. F. Joel & Co., of South Molton-street, W.; the well by Messrs. T. Tilley & Sons, of Commercial-road, E.

CONVENT, BESSBROOK, CO. ARMAGH.—The foundation-stone of the new Convent of Mercy at Bessbrook was laid on the 9th inst. The site of the building is on Maghernahely Hill. The contract was awarded to Mr. Denis Neary, of Newry, and the cost will be about 6,000*l.* The architect is Mr. J. J. M'Donnell, Belfast. The building will have a frontage of 130 ft., three stories high, and is intended to accommodate eighteen sisters. A chapel and schools will be included in the building.

HOSPITAL BUILDINGS, LLANELLY.—The Llanelly Hospital Committee have decided to extend their present buildings and also erect a new operating-theatre with the most modern appliances for the surgeons' uses. Mr. Wm. Griffiths, architect, has been intrusted with the work.

KING WILLIAM'S COLLEGE, ISLE OF MAN.—The new Science Buildings in connexion with King William's College, Isle of Man, were opened by the Lieut.-Governor of the Isle of Man (Lord Henniker) recently. The new science buildings consist of chemical and physical laboratories and lecture rooms. The upper floor includes a chemical lecture room, chemical laboratory, balance room, and preparation room. On the lower floor there is a physical laboratory, a physical lecture room, a workshop, a dark room for optical work, and a dark room for photographic work. The walls are built of limestone from the Scarlett quarries, and the elevation is in harmony with the other college buildings. Messrs. Willink & Thicknesse were the architects.

NEW BUILDINGS IN ABERDEEN.—The Plans Committee of the Town Council has sanctioned the plans of the following new buildings in Aberdeen:—Six dwelling-houses on the north side of Hosefield-avenue, for Mr. A. Davidson, per Mr. Duncan Hodge, architect; three dwelling-houses on the south side of Carlton-place, for Mr. Alexander

Anderson, builder, per Messrs. Brown & Watt, architects; alterations in connexion with premises, No. 12, Charles-street, for Mr. R. Gordon, per Messrs. Brown & Watt, architects; two dwelling-houses on the south side of Howburn-place, for Mr. John Strachan, per Messrs. Cameron & Watt, architects; two dwelling-houses on the west side of Anderson-drive, for Messrs. Bodie & Stephen, per Messrs. Cameron & Watt, architects; addition to provision works at South Esplanade, East, for Messrs. Marshall & Co., per Mr. George Coutts, architect; five dwelling-houses on the east side of Hosefield-avenue, for Mr. James Green, per Messrs. Walker & Duncan, architects; alterations and additions in connexion with premises No. 67, Crown-street, for Mr. A. Stuart, per Mr. Alexander Mavor, architect; alterations in connexion with premises Nos. 82-84, Ship-row, for Mr. D. M'Rae, per Mr. Geo. J. Milne, architect; dwelling-house and shops on the west side of Holburn-street, for Mr. James Monro, per Messrs. Brown & Watt, architects; addition to No. 4, Albyn-terrace, for Mrs. Garden, per Mr. George B. Mitchell, architect; two dwelling-houses on the north-west side of Broomhill-road, for Mr. William Walker, per Mr. James Watt, architect; dwelling-house on the east side of King-street, for Messrs. Gray & Kellas, per Messrs. Cameron & Watt, architects; two dwelling-houses on the north-west side of Grampian-road, for Mr. John Ritchie, per Messrs. Cameron & Watt, architects; alterations and additions in connexion with premises, No. 380, George-street, for Mr. Alexander Stephen, per Messrs. Brown & Watt, architects; addition to granite works on the east side of King-street, for Mr. Robert Gibb, per Mr. Duncan Hodge, architect; dwelling-house and shop on the east side of Bon Accord-street, for Messrs. R. & J. Reid, per Messrs. Brown & Watt, architects; alterations and additions in connexion with the premises, No. 600, King-street, for Mr. George Cassie, per Mr. William Smith, architect; dwelling-house on the south side of Constitution-street, for Mr. D. M. Mitchell, per Messrs. Sutherland & Pirie, architects; alterations and additions in connexion with Morningfield Hospital, King's-gate, for the managers, per Messrs. W. & J. Smith & Kelly, architects; additions to Educational Trust Buildings, King-street, for the governors, per Messrs. W. & J. Smith & Kelly, architects; six dwelling-houses on the south side of Devonshire-road, Messrs. Cameron & Watt, architects; alterations and additions in connexion with premises, No. 207, Union-street, for Mr. James P. Kay, per Messrs. D. & J. R. M'Millan, architects; dwelling-house and shops on the south side of Great Western-road at its junction with Duthie-terrace, for Mr. J. D. Mackie, per Messrs. W. Henderson & Son, architects.

INSTITUTE, HALTON, YORKSHIRE.—New premises for the members of the Halton Institute, who have hitherto been located in the Board School, are to be erected. Plans have been prepared by Messrs. Bedford & Kitson, of Leeds, for the new building, which will consist of a billiard-room, reading and dressing rooms, on the ground floor, whilst the upper rooms, which will provide seating accommodation for 250 people, will be used for public meetings and entertainments. The anticipated cost of the building and its appointments is about 2,500*l*.

BATHS AND WASH-HOUSES, FULHAM.—On the 10th inst., Mr. J. McDougall, Chairman of the London County Council, opened the new baths and public wash-houses which have been erected at Fulham. The building has been erected from the designs of Mr. H. Dighton Pearson, of Chancery-lane, at a cost of 62,593*l*., which included 20,000*l*., the cost of engineering, electric lighting, and pumping machinery. The main entrance is in Melnott-place. There are twenty-eight first-class and fifty-six second-class baths. The women's swimming-bath contains a pond of 60 ft. by 20 ft., and 6 ft. 6 in. to 3 ft. 6 in. in depth; thirty-one dressing-boxes, douche bath, &c. As this bath will be used on alternate days during the winter months by men, a pass door has been placed, giving access from the men's first-class corridor. The first-class private baths contain eighteen baths, &c. The first-class men's swimming-bath contains a pond 100 ft. by 30 ft., 6 ft. 6 in. to 3 ft. 6 in. deep; sixty-four folding dressing-boxes, douche-baths, and lavatory accommodation. The club-rooms attached to this bath have been arranged to give cloak-room and dressing-room accommodation at swimming entertainments. A gallery is carried round the swimming-baths, with staircases leading from the men's second-class corridors. The men's second-class private baths contain forty-one baths. The swimming-bath has a pond 125 ft. by 33 ft., 6 ft. 6 in. deep at the diving-stage end, and 3 ft. 6 in. at the shallow end; dressing-stalls for 125 bathers; douche-bath, &c. At the end of the men's second-class corridor are pass-doors leading to the establishment laundry. The public wash-house—the entrance to which is in Hartismere-road, contains stalls for sixty-six washers and a like number of drying-horses, and four hydro extractors. A large ironing-room is also provided. The basement contains subways, giving access to all piping to private and swimming baths, and also to drains. The boilers are placed under the public wash-house. Adjoining the boiler-house is the engine-room and well-house. A furnace chimney 80 ft. high is provided and built detached from the building. A water storage tank for 40,000 gallons is constructed over the washers' lockers and pay-box. The building contract was carried out by Mr. Charles Wall, of Chelsea; the engineering work by Messrs. Fraser & Fraser, of Bromley-by-Bow; the electric light wiring and fittings by the National Electric Wiring Co., of Victoria-street; the boilers and economiser by Messrs. Fraser & Son, of Millwall; and the artesian wells by Messrs. A. C. Potter & Co., of Leadenhall-street.

IMPROVEMENT OF VICTORIA STATION.—Having bought the Grosvenor Hotel and acquired all the property between the hotel and Ebury Bridge, the London and Brighton Railway Company have begun operations under their scheme framed three years ago for enlarging the terminus from 6¼ acres to 14¼ acres in area, and providing room for extended platforms for eighteen instead of only eight trains as now, with four lines running out of the station. The space in front of the station will be considerably enlarged and will be closed to cab-traffic (for which other provision is to be made) and opposite the space will be erected new booking and other offices, with an extension of the hotel in the upper floors. It is intended to carry the new platforms beneath Eccleston Bridge which will be raised, and a corresponding alteration will be made of the level of Buckingham Palace-road as it approaches the bridge; between the platform-gates and the booking-offices is to be an open area extending across the entire width, 240 ft., of the station, and being 100 ft. in length. The total cost of the works, including a further widening, for two lines of rails, of Grosvenor Bridge, across the river will, it is estimated, amount to 1,080,000*l*. Extensive structural alterations of the hotel have been carried out by Mr. Alfred Waterhouse, and Mr. Morgan, engineer to the railway company. It was built in 1860-1 by Kelk, after the plans and designs of J. T. Knowles.

SANITARY AND ENGINEERING NEWS.

THE HIGHLAND PARK BRIDGE, PITTSBURG.—The new bridge across the Alleghany, completed in January last, connects Highland Park, Pittsburg, with Sharpsburg, and it has a total length of 1,850 ft., carrying a highway, two electric car tracks, and two footways. The structure includes an embankment and plate-girder approach viaduct, short lattice-girder spans, a 240 ft. truss span over a side channel of the river, three 30-ft. lattice-girder spans and connecting spans of 90 ft. and 110 ft. over Six Mile Island, and a cantilever span 850 ft. long between the anchorages, crossing the main channel of the river and the lines of the Alleghany Valley Railway, the clear span of the cantilever construction between the river piers being 450 ft. Six river piers, two abutments, and six pairs of cylinder piers on the island, form the substructure of the new bridge, which contains about 1,250 tons of steel. There are about 700 tons in the cantilever span, which was erected on each side of the river by means of a traveller, and then the centre connecting span, previously assembled complete on a large lighter, was towed under the bridge, and hoisted bodily to its position 80 ft. above water level. The lifting and connexion of the span occupied only about three hours, and the unusual method of erection adopted rendered unnecessary any provision for temporary erection stresses and any costly adjustment tackle for the expansion joints at the ends.

LINLITHGOW WATER SUPPLY.—The drought and lack of rainfall is having a serious effect on the Linlithgow water supply. The matter was discussed at the last meeting of the Local Authority, when it was resolved to take steps by way of providing for any contingency that might arise. Some time ago the services of Messrs. Leslie & Reid, C.E., Edinburgh, were called in to advise the Council as to the best means of supplementing the present supply, and they are expected to report upon the matter shortly.

SEWERAGE SCHEME, FORMBY.—A Local Government Board inquiry was opened on the 8th inst. at the "Grapes Hotel," Formby, by Mr. H. H. Law, M.Inst.C.E., and Mr. H. T. Bulstrode, M.D., concerning the application of the Rural District Council of West Lancashire for sanction to borrow 41,000*l*. for the purpose of sewerage and sewage disposal for the township of Formby. Mr. C. A. Atkinson, engineer, explained the scheme, of which he is the author. Evidence was also given by Mr. A. J. Martin, Dr. Klieb, Professor Dibdin, and others.

SEWAGE SCHEME, MANCHESTER.—On the 10th inst. a Local Government Board inquiry was held at the Manchester Town Hall by Mr. H. H. Law and Dr. Theodore Thomson into an application by the Corporation for sanction to borrow the sum of 350,894*l*. for purposes of sewage disposal, including the purchase of land and the construction of works in the townships of Carrington, Davyhulme, and Flixton. In the course of the inquiry, Mr. J. P. Wilkinson, C.E., who had prepared the scheme for the construction of the works, gave a description of the works.

ILFRACOMBE DRAINAGE SCHEME.—Mr. E. A. Sandford Fawcett, M.Inst.C.E., Inspector of the Local Government Board, held an inquiry at Ilfracombe on the 10th inst. into the application of the Urban District Council for sanction to borrow 31,200*l*. for works of sewerage and 1,950*l*. for street improvements. Those present included Dr. Slade King (medical officer), G. R. Strachan (consulting engineer), O. M. Prouse (surveyor), and others.

STAINED GLASS AND DECORATION.

WINDOW, ST. MARY'S, BATHWICK.—On the 6th inst. that portion of the westernmost window on the south side of St. Mary's, Bathwick, which has been filled with stained glass in remembrance of Mr. William Parham, was dedicated. The work was executed by Messrs. Clayton & Bell, of London.

MEMORIAL WINDOW, HOLY SAVIOUR'S CHURCH, TYNEMOUTH.—On the 13th inst in Holy Saviour's Church, Tynemouth, a new stained-glass window was unveiled to the memory of Mary Elise Sopwith. The window is situate in the south transept, and is comprised of three large openings and tracery above. The design represents Faith, Hope, and Charity, after the figures by Sir Joshua Reynolds. The tracery above is filled with cherubs bearing a scroll which extends across the whole window. The work has been carried out by Messrs. Wailes & Strang, Newcastle-on-Tyne.

FOREIGN.

FRANCE.—The opening of the new Museum of Decorative Art will take place next month, in the Pavilion Marsan, where the collections have been arranged under the care of M. Redon.——The archæological objects found at Susa by M. de Morgan are in course of arrangement in the portion of the Grand Palais des Arts situated at the angle of the Cours la Reine.——The Municipal Council of St. Etienne has arranged to expend a sum of 8,640,000 fr. on street improvements and the rebuilding of the Hôtel de Ville.——M. Pourquery de Boisserin, deputy and mayor of Avignon, whose vandalism has made his name celebrated, continues his course of depredations, and is at present demolishing a fresh portion of the ramparts of Avignon, between the Port St. Michel and the Porte Limbert. Neither the Government nor the Commission de Monuments Historiques seem to have thought it worth while to intervene.——A civil Engineer, M. Caralonga, has submitted a scheme for a subterranean moving pavement between the Place de la Concorde and the Place de la Bastille, with a return. The cost is estimated at 25,000,000 fr.——The Institut de France has awarded the Prix Duc to M. Guilbert, the architect, for his monumental church in commemoration of the bazaar fire.——At the Luxembourg the room annually devoted to foreign art is this year occupied by England and America. Among the works collected are Mr. Watts's "Love and Death," Mr. Whistler's "Portrait of My Mother," Mr. Sargent's "Carmencita," &c.——The Ecole Speciale d'Architecture, situated at present on the Boulevard Mont Parnasse, is to be rebuilt on the Boulevard Raspail.——The Conseil-Général of the Seine is about to open a competition in painting for the decoration of the new Mairie at Vanves.——The Municipality of Nimes is about to open a competition for the rebuilding of the Museum of Painting and Sculpture in that town.——The death is announced of M. Théodore Charpentier, architect, at the age of 73. He was a member of the Societe Centrale and Vice-President of the "Caisse de Defense Mutuelle des Architects".——The death is also announced of M. F. Kaemmerer, the painter, at the age of sixty-three. He was of Dutch nationality, but had lived for many years at Paris. He obtained many medals and the cross of the Legion of Honour. He was a very able artist, excelling chiefly in *genre* subjects. Among his principal works may be named "Un Baptême," "Un Charlatan," "Manon," &c.

SWITZERLAND.—The new palace of the Swiss Parliament at Berne was opened on April 1 by the members of the Swiss Federal Council and the Federal Assembly. The building of the palace was sanctioned in 1892, and was begun in 1894. The edifice is surmounted by a lofty cupola and is situated between the two Government palaces, in conformity with the recommendation of the Legislature, but Swiss artists and Swiss material were employed on the building. It was designed by Professor Auer, of St. Gall, under whose personal supervision the work has been carried out. The cost is estimated at 8 million francs.

AUSTRALASIA.—A new bridge is about to be built over the Murray river to connect Barham on the New South Wales border, with Koondrook on the Victorian side. It will have a steel lift span, and two composite truss spans, each of 104 ft.; also timber approach spans. The work is to be carried out under Government authority.——Large additions are being made to the convent of St. Joseph, North Sydney, and the foundation-stone was recently laid by Cardinal Moran. The additions will be in the domestic Gothic style of the fourteenth century with gables at each end, and ventilating turret in the centre. Mr. D. V. Healy, of Sydney, is the architect.——The Hobson-street wharf, Auckland, New Zealand, is about to be extended at a cost of over 12,000*l*.——Officers' quarters, &c., are to be erected at Southport,

Queensland, in connexion with the Pacific cable station.

INDIA.—Surveys are being made in the Prome district, Burmah, with a view to starting irrigation works and bringing large tracts of once cultivated lands into use which now lie waste in years of small rainfall.——The Government of India has asked local authorities to give a list of what buildings and monuments are in their opinion worthy of being protected, or of being marked by memorial tablets. ——A statue of the late Queen-Empress has been unveiled on the maidan at Calcutta, in the presence of the Viceroy. The statue, which is by Mr. Frampton, is in bronze, and represents her late Majesty seated in a State chair and with insignia of sovereignty. The pedestal on which the statue rests is of green Irish marble.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.—Mr. George Simpson, architect, has removed his offices from 15, Buckingham Gate-mansions, to 2, Princes-street, Hanover-square, W.

THE NEW FOREST.—The Government have just issued their Bill for enabling the Commissioners of Woods to sell or let land in the New Forest for necessary public purposes. The Bill provides that the Commissioners may sell or let for any term land in the Forest to meet any local sanitary requirement, and that so long as the sale or lease has effect the land in question shall be free from all rights of common, &c. (the use of any public highway thereon excepted), may be enclosed, and shall be exempt from any obligation under any Act to appropriate land to growing timber or trees. The rights of the commoners that may be prejudicially affected are to be compensated for by payments to the verderers, who will apply the moneys for purposes of the New Forest Act of 1877. Each sale or letting must in the first instance be made the subject of a representation addressed to the Local Government Board, and with the Commissioners' concurrence, setting forth that the land is immediately required in the interest of the public health of the locality, that no suitable land outside the Forest is available without undue expense, and that the situation, extent, &c., of the land will satisfy the requirements of the case, which will be tested by a local enquiry conducted by the Local Government Board.

BOND FOR CONCRETE JOINTS.—A new method of bonding successive layers of concrete has lately been patented by an American firm, and is specially suitable for use in connexion with concrete buildings. The present method of constructing a floor with steel-concrete beams and filling involves the trouble and expense of building up falsework for supporting the work until it has set sufficiently to be safe. Under the new system the beams can be made in moulds in the contractor's yard instead of being formed on the site. In the upper surface of each beam a spiral coil of twisted steel is partly embedded so as to provide an efficient bond for the flooring concrete. When the beams for a given floor have been made and are thoroughly set, they can be delivered and erected in position without any difficulty. Bolt holes are left through the upper portions of the beams for the attachment of cleats, upon which centring boards may be laid for supporting the floor slab, and so the whole floor can be carried during construction by the beams and columns. The system of bonding to which we refer should be reasonably inexpensive, and it will certainly facilitate the erection of steel-concrete buildings.

THE OLD LEYSIAN MISSION.—An extension scheme, recently ratified, comprises the establishment of an Old Leysian Settlement and Hostel on a site in the City-road. There will be a settlement for students and young men engaged in business; a settlement for lady-workers and the sisterhood; men's and women's clubrooms, with gymnasium and drillhall; a great hall with a capacity of 2,000, and a lesser hall with a capacity of 600; a suite of twenty-five classrooms; a medical mission department, &c. One-fifth of the total cost, which it is calculated will amount to 100,000*l.*, will be granted from out of the Wesleyan Connexional Fund. Some recoupment is looked for from the rentals of the shops and offices that will be let for general purposes.

HOUSING AT DURHAM.—On the 5th inst. a public meeting to consider the housing needs of the city was held at the Mayor's Chamber, Durham. Mr. Aldridge, of the National Housing Reform Council, under whose auspices the meeting was held, said the Council took up the question in no hostile spirit to the municipalities, and were principally desirous of awakening an interest in the matter. Quoting from the recent census return, the speaker said there were 439 one-roomed houses in Durham. In 133 cases one person lived in one room, in 131 cases two persons in one room, 73 cases with three, 54 with four, 22 with five, 14 with six, 5 with seven, 4 with eight, and one with eleven in one room. There were also in the city 980 two-roomed houses, occupied in 758 cases by one person, in 168 by two, in 182 by three, in 160 by four, in 126 by five, in 102 by six, in 76 by seven, in 43 by eight, in 31 by nine, in 13 by ten, in 2 by eleven, and in 2 by twelve or more persons. There were 430 three-roomed and 377 four-roomed houses. The co-operative society had done something in the matter; but the time had arrived when the Municipality should take up the matter, and he urged on the citizens of Durham to do something.—The Mayor expressed sympathy with the object of the Council. It depended very largely on the people themselves. If they were to put some people into better dwellings they would be in the same position a month later, and they would have the same thing to go over again. Great attention had been paid to the matter by their Medical Officer and Surveyor in Durham, and he could hardly believe there was one case in that city where seven or eight people were living in one room. He felt inclined to contradict it; but if it were true, the sooner it was remedied the better. Speaking for the Durham Corporation, he did not see how they could do anything in the matter just now; they had enough on hand in other ways. Besides, where could they get land to build on at a reasonable price?—After discussion it was agreed, on the motion of Mr. John Wilson, M.P., seconded by the Rev. H. Robertson, and supported by Mr. J. Johnson, "That this conference, having had under consideration the overcrowding in the city of Durham (which we very much regret), is of opinion that a large portion of it arises from the number of miners (for whom houses should be found by the employers at the surrounding collieries) being compelled to reside in the city owing to the lack of houses near the mines where they work, and we call upon such employers to provide a sufficient number of houses for their workmen contiguous to the mines, which would relieve in part congestion and overcrowding in the city." A further resolution inviting those concerned to consider what further steps should be taken was carried.

CO-OPERATIVE BUILDING.—A midland sectional conference, promoted by the Productive Committee of the Co-operative Union, was held at the Worcester Co-operative Hall on the 5th inst., Mr. J. Giles (President) presiding, when a paper by Mr. W. H. Brown, entitled, "The Next Step in Co-operative Production," was submitted for discussion. The paper, pointing out that co-operative societies had already spent over seven millions in housing, suggested that co-operators should seriously tackle the building trades. Some such efforts had proved expensive, others had produced profits. Operations should be begun in a small way in connexion with a mortgage department. Co-operative societies would thus help to house the people, while retaining the profits in their own hands, and would extend their influence in many ways, so that co-operative saw mills would be necessary; they would go direct to the importer of timber; and would need their own stone works and co-operative quarries. The jerry builder would have a competitor, and the standard of building would be raised.—Mr. Taylor (Leicester) agreed with the principle, but said he represented a society which had a works department, and could not congratulate them on their success. After forty years' experience in the building trade he had no hesitation in saying they were altogether out of the market. He knew a co-operative society which went into competition with private builders, and had in consequence to write off its capital 40 per cent.—Mr. Mann (Leicester) described the methods of the society referred to by Mr. Taylor as "slip-shod."—Mr. Langley (Productive Committee) said the step advocated had been taken for some years. Experience at Kettering had shown that with determination the trade would flourish.—Mr. Brough (Birmingham Industrial) thought it a mistake for an ordinary society to dabble in too many departments. It was impossible for a committee of twelve or thirteen men to look after a business extending in such widely different directions as bacon and buildings.—Mr. Codling (Lincoln) said the step had been taken long ago. His society did work last year amounting to 16,235*l.*, a portion of which was in competition with outside builders for public work. If properly managed it was a very profitable department.—Mr. Halstead (Co-operative Federation), moving a vote of thanks to Mr. Brown, thought it would be possible in the future to federate the purchase of certain common stocks of timber.—Mr. Woodhouse (Derby), seconding, said Mr. Brown had only anticipated what many large societies would be driven into. In Derby, where they had made a good start, they could not get workmen to rise to the co-operative idea. His society had advanced 183,000*l.* to members for houses, many of which were built by the society. Mr. Brown, in reply, said that of the seven millions spent by co-operative societies in housing, he would guarantee that over six millions had gone into the pockets of private firms. He had just been around Droitwich, where he thought there was an opening for the Co-operative Society to put up decent houses. He was glad to hear that in the Midlands the bricklayers put forth their best. He would like to take some back with him to his society's Woolwich estate, where they had difficulties, even though their men were paid the trade union rates.

AN ARCHÆOLOGICAL FIND.—An archæological discovery has been made in the old ruins of Llantrithyd Place, in the Vale of Glamorgan. In consequence of the erection of certain temporary buildings inside the ruins of Llantrithyd, it became necessary to remove a portion of a mound of earth, under which a carved stone was found. The soil was carefully removed on all sides, and a round block of stone, which would appear at one time to have been the base of a pillar or cross, was revealed. It is about 2 ft. in height and 3 ft. in diameter. Its upper side has a square hole in it, such as is to be seen in the shaftless bases of many of the Glamorganshire churchyard crosses. But the interesting feature about it is that all round its sides it is finely carved. It is evident that the work is of Norman date. The carving represents arching, the arches of which are Norman in style. Each arch is separated by a slender pillar, of which the bases appear to be plain, while the capital of every alternate pillar is fluted. The style is different from anything to be found in any church in the Vale of Glamorgan, and the vicar of Llantrithyd inclines, says the *Westminster Gazette*, to the belief that it once formed the base for a pillar, or statue, in one of the rooms at Llantrithyd Place.

GOVERNMENT OFFICES, DUBLIN.—It is stated that the Government have prepared a measure for enabling them to acquire upon compulsory terms of purchase a block of large houses in Upper Merrion-street, Dublin. The houses, eight in number, stand between Merrion-place and Leinster-lawn; five of them are already occupied by the Agricultural Department and the Stationery Office, and it is understood that the three others will be taken for purposes of certain departments which are at present housed, at considerable expense, in various outlying situations. If the scheme is accomplished it is probable that the gardens and stabling of the houses in Upper Merrion-street that lie towards Kildare-street will be levelled, and the ground utilised to afford a frontage to the latter street for the new College of Science.

CLAREMONT CHAPEL, PENTONVILLE-ROAD.—This building, which has remained vacant during some months past, has been taken by the London Congregational Union to serve for a mission centre in what is, we believe, one of the most densely-populated districts of London. One half—4,000*l.*—of the cost of the scheme is contributed by Mr. W. K. Brown, of Woodford, who intends to alter the interior of the fabric for its new uses, to make four classrooms on the ground floor, to provide a kitchen, lavatories, and so on, as well as reading-rooms and a large lecture-hall, and so to convert and extend the premises as a local "settlement."

HEATON PARK, MANCHESTER.—It is announced that the Corporation of Manchester have bought for 230,000*l.* the Heaton Park estate from the Earl of Wilton. The park, which extends over about 680 acres and is surrounded with a brick wall, is distant four miles from the Royal Exchange, whence it can be readily gained by road or conveyance. The estate will be converted for purposes of public resort and recreation, and it is proposed to adapt the mansion-house, which stands in the park, as a picture gallery or museum. The house was built, 1772-3, after plans and designs by James Wyatt, for the first Earl of Wilton. From a temple in the park is obtained an extensive view over the adjoining counties.

THE PARISH CHURCH, BEAUMARIS.—We hear that Mr. Bodley has prepared the plans for the restoration, at an estimated expenditure of 5,000*l.*, of the parish church, formerly known as the Chauntrey of Our Lady of Beaumaris. The church has a large square embattled tower at the west, a chancel, and a nave with north and south aisles—called St. Mary's Chapel and St. Nicholas's Chapel respectively. The fabric was repaired by Viscount Bulkeley, to whose memory a marble monument, by Westmacott, was erected in the chancel, where is also a fine alabaster altar-tomb with their effigies of, as is supposed, Sir Richard Bulkeley and his wife, *temp.* Elizabeth, removed thither at the dissolution of the neighbouring monastery at Llanvaes. After Lord Bulkeley's death in 1822, his Baron Hill estate, on which stand the ruins of Beaumaris Castle, passed to Sir Richard Williams-Bulkeley, Bart.

SELBY ABBEY TOWER.—A meeting of the committee appointed to deal with the repair of the Selby Abbey tower was held on the 8th inst. A Report was received from Mr. J. Oldrid Scott, of London, who stated that since his last report on the tower the various defects to which he drew attention have increased, in spite of certain work which has been done in the interval to strengthen the north wall. The upper stage, he says, is in bad condition, the cornice being almost ruinous, while the walls are badly built and in a very disjointed state. The chief mischief, however, shows itself in the north-west pier, which during the last few years has developed a considerable number of cracks passing through its facing stones. These surface failures show clearly that the pier is carrying a greater weight than it is equal to. It is this pier which has always been the one which has been most affected by the soft subsoil on which the tower is built, though it is quite possible that the one to the south-east was still more seriously affected before it gave way in the seventeenth century. Certainly, of the four piers it is now seen that the one to the north-west has sunk the most, and it also carries a greater weight than any of the others, owing to the south and east walls of the tower having been reduced in thickness when they were rebuilt. It has therefore become absolutely necessary to take some steps to arrest the mischief which is in progress, and which if allowed to proceed will undoubtedly increase and create a very serious danger. It is a great satisfaction to

Mr. Scott that the committee appointed to ensure the stability of the tower have resolved to take the course decided on, and reduce the weight of the tower by removing the upper story. It appears that this will relieve the piers of about one-fifth of the burden they have to carry, and it can afterwards be considered what further steps shall be adopted for remedying the defects in the north-west pier which he described. His own strong hope is that within a reasonable time it may be decided to deal with the defective foundations of the pier as well as to remedy the weakness which has shown itself above the ground level. Whether, when doing this, the terrible distortion of the arches abutting on the pier from the west should be made good, as those to the east of the tower have already been, will be a subject for further consideration.

CURIOUS DISCOVERY AT CAPRI.—The romantically situated ruins of a Roman Imperial villa—the villa of the Emperor Tiberius on the southern headland of Capri—have recently been undergoing archæological examination, and amongst the subterranean chambers unearthed the traces of an ancient prison have come to light, which, to judge by inscriptions, was at one time tenanted by the wife and sister of the Emperor Commodus nearly two hundred years after the time of Tiberius.

THE HOUSING QUESTION.—On the 26th inst. a North of England Housing Reform Conference will be held in the Meeting Hall of the Co-operative Wholesale Society, West Blandford-street, Newcastle-on-Tyne. The following resolutions are to be submitted:—(1). That this Conference desires to call the attention of Local Authorities throughout the North of England to the evil effects on the life and happiness of the people resulting from overcrowding and bad housing conditions; and in view of the fact that many Local Authorities in the Kingdom have successfully administered "The Housing of the Working Classes Act, 1890 and 1900," urges them to—(*a*). Make special local enquiries in regard to the housing conditions prevailing within the areas under their control, both in respect to the needs of the "poorest poor" and also of the skilled artisan; and (*b*), On ascertaining the need for the use of remedial measures, to place into active operation the valuable powers which have been provided for that purpose. 2. That this Conference desires to call the attention of Local Authorities throughout the North of England to the need for—(*a*). Making such alterations in their by-laws as shall render impossible the building of long unbroken rows of houses, with doors opening direct upon the common pavement, and with cramped backyards. (*b*). The encouragement in every possible way of the design and erection of artistic "self-contained" cottages, with wide roads, large gardens and a plentiful provision of open spaces for the healthful recreation of the community. (*c*). The setting of a standard in this respect by the development of municipal garden cities. (*d*) Obtaining further legislation to enable Local Authorities to acquire land under compulsion at a price based on the assessment of such land to taxation. This land to be then used municipally or leased under the Act of 1900 to co-operators and other societies for the purpose of building houses for the people. III.—That this Conference desires to express its satisfaction at the rapid increase in the means of cheap and easy electric transit, especially in Newcastle and Sunderland, where direct public control has been secured. This Conference, moreover, urges Local Authorities in every district in which the supply of workmen's trains is inadequate, to bring the matter under the official notice of the Board of Trade, and to ask that Authority to take the necessary steps to secure the provision by the railway company of an adequate supply of workmen's trains in accordance with the Cheap Trains Act, 1883, under which they obtained a remission of passenger duty, on condition that provision should be made by them for workmen's trains.

AN AUSTRALIAN NATURAL MARVEL.—The railway connecting Sydney with Brisbane, as it emerges from the Hunter River Valley and proceeds towards the Queensland border, traverses a country full of picturesque interest, while the region between Scone and Wingen possesses many features of interest to geologists and scientific men. As Wingen, ten miles beyond Scone, is approached, a singular natural curiosity becomes observable. This is an object popularly known as "The Stone Woman of Wingen." The spur of a mountain range, known as Salisbury Crag, terminates in a bold, bluff headland, about 700 ft. above the level of the valley which it commands, the profile assuming the form of a grey stone woman of enormous dimensons sitting with her back against the cliff, her head just separated from the top, and her feet hidden among the trees which grow up to the bottom of the cliff. On her knee there is resting an open book, which she is not reading, but instead is gazing for ever down the beautiful valley of the Hunter, over Scone, Aberdeen, Muswellbrook, Singleton, and Maitland, which, with good glasses on a clear day, may all be seen by any one standing on the top of the cliff, or on the stone woman's head, which is its most southerly extension. From where the feet of the stone woman rest among the towering trees that grow round the base of Salisbury Crag to the summit of her head must be about 500 ft., so that if she were to stand up straight some day she would be about 800 ft. high. If the proper point of view be chosen, the pose of the figure is perfect in its magnificent simplicity. Those who have seen it, describe it as one of the grandest natural marvels yet known.

COMMONS AND FOOTPATHS PRESERVATION SOCIETY.—A meeting of the General Committee of the Commons and Footpaths Preservation Society was held at 25, Victoria-street, Westminster, on the 11th inst., the Right Hon. G. J. Shaw Lefevre in the chair. The Chairman reported that he had now received a communication from the Charity Commissioners in reply to the protest which he had formulated on behalf of the Society against the proposed alienation of Fuel and other allotments, notwithstanding the clause in the Commons Act, 1876, which provides that no such allotments shall be diverted from their original purpose except for recreation grounds and field gardens. The Commissioners now stated that "they have come to the conclusion that the restrictive provisions of Section 19 of the Commons Act, 1876, was not affected by Section 18 of the Commons Act, 1899, and that accordingly the Commissioners are not at liberty to sanction the sale, or letting on building lease, of any part of an allotment falling within the section first above-mentioned." Much satisfaction was expressed at the favourable result of the Society's representations, as the decision of the Commissioners will ensure the preservation as open spaces of many thousands of acres of allotments set out under old Inclosure Acts.—The Solicitor reported that the Birmingham Corporation had now agreed to the insertion in their Water Bill of clauses drafted by the Society with the object of securing to the public a privilege of enjoying air, exercise, and recreation on such parts of the common land which they propose to acquire in Radnor, as are not required for actual works. The area of common land over which the public will obtain the privilege will exceed 1,600 acres.—It was stated on the consideration of the Richmond Hill (Preservation of View) Bill that it was now proposed to vest in the Ham Urban District Council, and not the Surrey County Council, the major portion of the riverside land to be given by Lord Dysart as part compensation for a right to enclose the open common fields. The following resolution was unanimously adopted: "That this Committee is of opinion that a settlement of Lord Dysart's interests in his lands at Ham and Richmond which vests the riverside lands to be dedicated to the public (the principal concession for the advantages his lordship is to obtain) in a small local authority like the Ham Urban District Council, which has no adequate rating power, will not be satisfactory, and the Committee trusts the lands will be vested in the Surrey County Council, which is willing to take charge of them."—It was also resolved to take such steps as might be necessary to ensure that no amendments prejudicial to the interests of the general public are made to the New Forest (Sale of Lands for Public Purposes) Bill. Other matters considered were the action the Society is taking with reference to the obstruction of the alleged rights of way leading to Stonehenge; the preservation of Lambourne Common, Essex; the enclosed land in the centre of Wandsworth Common; and the provision of parks and open spaces as a suitable means of permanently commemorating the Coronation.

FONT, ST. MICHAEL'S, CAMDEN TOWN.—A font has been placed in St. Michael's Church, Camden Town, executed from the designs of Mr. G. F. Bodley, who was architect of the church. It is in a dark green marble, the whole being placed upon two octagon steps of the same material. The work was carried out by Messrs. Flint Bros., of Clapham.

THE INCORPORATED ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS. — The thirty-sixth examination of candidates for Surveyorships under Municipal Corporations and District Councils, carried out under the auspices of this Association, was held at the Medical Examination Hall, Victoria Embankment, London, on Friday and Saturday, April 11 and 12. Thirty-two candidates presented themselves for examination. The examiners were:—In (1) Engineering: Mr. J. P. Barber, M.Inst.C.E., assisted by Mr. A. M. Fowler, M.Inst.C.E. (2.) Building Construction: Mr. W. Geo. Laws, M.Inst.C.E., assisted by Mr. W. N. Blair, M.Inst.C.E. (3.) Sanitary Science: Mr. J. Price, M.Inst.C.E., assisted by Mr. J. Lemon, M.Inst.C.E. (4) Municipal Law: Mr. C. Jones, M.Inst.C.E., assisted by Mr. J. T. Eayrs, M.Inst.C.E., and Mr. J. Lobley, M.Inst.C.E. Mr. Laws was the Superintending Examiner.

THE VALUE OF RIVERSIDE PREMISES.—Mr. Under-Sheriff Burchell and a special jury, at Red Lion-square, Holborn, on Friday last week, began the hearing of the case of "Wall *v.* the District Railway Co.," a claim for compensation in respect of wharf property in Chelsea Creek, and the Ashburnham Works adjacent thereto, and having a frontage to Lot's-road, Chelsea, required for the purposes of the new electrical generating station for the District Railway. Sir Edward Clarke, K.C., and Mr. Spokes appeared for the claimant; Mr. Cripps, K.C., and Mr. Courthope-Munroe represented the railway company. Sir Edward Clarke, in opening the case, said that the area to be taken was made up of 12,965 square feet used as a wharf, and 8,850 square feet, part of the Ashburnham Works, where the claimant had for many years carried on business as a builder. Owing to the absorption of the northern side of the Thames for public improvements in recent years, there was now hardly any wharf property on the north side of the river between Blackfriars Bridge and Chelsea Bridge. Consequently, the claimant would have to remove to the south side of the river to a site which would cost about 14,000*l.*, and new buildings and machinery would represent another 17,500*l.*; and for disturbance of the business a further 33,500*l.* should be added. Evidence in support of the claim was given by Mr. E. H. Bousfield (Edwin Fox & Bousfield), Mr. James Green (Weatherall & Green), and Mr. F. J. Terry (Fuller, Horsey, & Co.). On behalf of the railway company Mr. Cripps submitted that about 23,000*l.* would be proper compensation. On Saturday expert evidence in support of this contention was given by Mr. Alexander R. Stenning, Mr. Samuel Walker, and Mr. Douglas Young (vice-president of the Auctioneers' Institute). The jury, having viewed the property, after a short deliberation, awarded the claimant the sum of 35,000*l.*

THE CHURCH CRAFTS LEAGUE.—The Committee of the Church Crafts League have arranged for an exhibition of the work of its artist members to be open daily, at the Church House, Westminster, S.W., from April 30 to May 30, between the hours of 10 a.m. and 6 p.m. Admission is free, and no tickets will be required, and it is hoped that many of those who attend the "May Meetings" at the Church House will avail themselves of the opportunity of seeing the exhibits. The collection of Mediæval Church ornaments, which Mr. W. H. St. John Hope obtained for the English Church Exhibition at Brighton, during the Church Congress in October last, will also be included in the exhibition. The "private view" will be on Tuesday, April 29, and the Bishop of Rochester will formally open the exhibition on that day at 4.30 p.m. Cards of admission (for April 29) can be obtained from the secretary, Mr. Francis Burgess, Church House, Westminster, S.W.

PUBLIC IMPROVEMENTS, SHEFFIELD.—Mr. W. A. Ducat, an Inspector of the Local Government Board, held an inquiry at the Town Hall on the 11th inst., into an application by the Sheffield Corporation for sanction to borrow 10,148*l.* for the purchase of land at Bole Hills for a recreation ground and the site of a refuse destructor; 50,000*l.* for the conversion of middens into water-closets; and 4,800*l.* for street improvements. Evidence on the matters raised was given by the City Surveyor (Mr. C. F. Wike). At the close of the inquiry the inspector visited the Bole Hills.

RESTORATION OF MALMESBURY ABBEY.—The Bishop of Bristol presided at a meeting of the Restoration Committee in the Town Hall, Chippenham, on the 11th inst., when it was unanimously resolved that section two of the work, comprising the west end and two bays of the south aisle, be completed. This resolution was adopted in the hope that a public meeting to be held in Bristol would result in a material increase of the restoration fund.

CAPITAL AND LABOUR.

GLASGOW JOINERS.—A meeting of the Glasgow Master Wrights' Association was held on the 9th inst. in the Building Trades' Exchange for the purpose of considering the request of the working joiners that the conditions of employment which have, at the instance of the men's union, ruled in the trade for some years back, be signed by the masters individually for another year, and also for considering the advisability of insisting on a reduction of wages. Mr. John Smeaton, Govan, President, was in the chair. At the close of the meeting it was officially intimated that the masters were communicating with the men's officials, and that in the meantime they could not say what the tenor of their communication was. They added, however, that the majority of the meeting were decidedly against signing the conditions as desired by the men.

EDINBURGH JOINERS AND THEIR WAGES.—An aggregate meeting of Edinburgh joiners was held on the 7th inst. in the Music Hall, George-street, Mr. C. Murray presiding. The meeting was called to consider a notice by the employers on January 10 of a reduction of 1d. per hour, which made the wages of the trade 8d. per hour. A meeting of the men was held on the 12th of last month, when they decided not to agree to any reduction in their wages. They further decided to meet the employers in conference and discuss any point they might bring up. The employers subsequently wrote to the officials of the men that they agreed to a conference. That conference was held, and its result was reported to a meeting of the men held on March 31. At that meeting the men decided to adhere to their former decision not to accept any reduction. The employers then intimated that they were prepared to agree to a ½d. reduction, failing the acceptance of which that the matter be referred to arbitration. That matter was considered by the meeting on the 9th inst., and after considerable discussion it was agreed that they do not accept a reduction, and that they issue the existing by-laws to the employers for their signature.

LEGAL.

DISPUTE AS TO BUILDING A THEATRE AT NORWICH.

THE case of Morell and another *v.* the New London Discount Co., Ltd., came before Mr. Justice Ridley, sitting without a jury, in the King's Bench Division on the 11th inst. It was an action by the plaintiffs, Messrs. H. Harvey Morell and Frederick Mouillot, theatrical managers, to recover from the defendants damages for breach of an agreement entered into between the plaintiffs and the defendant company, and in the alternative for the repayment of the sum of 300*l.* paid by the plaintiffs to the defendants. The defence was that there had been no breach of the agreement, and defendants counterclaimed for the sum of 102*l.*, which they said was due to them by the plaintiffs under the agreement.

It appeared that at the end of the year 1898 the defendants arranged to build a theatre at Norwich, and for that purpose acquired a site and engaged the services of Mr. Runtz, theatre architect. The defendants in the spring of the following year got into communication with the plaintiffs, and in the result an agreement was entered into dated August 16, 1899. It contained a recital that the defendants had purchased land at Norwich and intended to build a theatre on it, and that it was agreed the plaintiffs should contribute towards the expenses of building the theatre at the rate of one-tenth part to each nine-tenths parts contributed by the defendants, the plaintiffs' liability being limited to 1,250*l.* The plaintiffs were to become managing directors of the theatre at a salary of 200*l.* a year each for a term of five years, and were to receive 10 per cent. on the surplus profits available for dividend after the ordinary shareholders had received a dividend of 5 per cent. The defendants spent some 4,022*l.* on the building operations, but in December, 1900, the company went into liquidation. Towards the sum of 4,022*l.* the plaintiffs contributed 300*l.* under the agreement by means of three bills for 100*l.* each, and also gave a bill for 102*l.*, but they refused to meet it when it became due owing to the work on the proposed theatre having come to an end on account of the company being in liquidation.

Mr. Horace Avory, K.C. (with him Mr. C. A. S. Garland) on behalf of the plaintiffs contended that there was an implied covenant that the theatre should be built within a reasonable time. The plaintiffs had performed their part of the contract in consideration of the land having been obtained and the theatre being built, and he submitted that so long as the plaintiffs were willing to contribute, the defendants were bound to go on with the work.

Mr. Eldon Bankes, K.C. (with him Mr. Atkin) argued that there was no implied covenant to build the theatre. As both the plaintiffs and the defendants were co-adventurers in a speculation to build the theatre, and financial assistance not being available the plaintiffs were not entitled to succeed.

Mr. Justice Ridley in giving judgment thought that defendants ought to succeed. He did not think that the agreement ought to be read in the way contended for by the plaintiffs. The case was one in which the defendants had not taken on themselves the obligation in any express terms, and the law would not place them under the obligation in the absence of express words. There would be judgment for the defendants on the claim, and on the counterclaim for 102*l.*, the balance of the sum of 402*l.* which remained unpaid, with costs.

AN ENGINEER'S ACTION AGAINST A DISTRICT COUNCIL.

THE case of Lawford *v.* the Billericay Rural District Council came before Mr. Justice Darling, sitting without a jury, in the King's Bench Division on the 11th inst., it being an action by the plaintiff, an engineer, to recover from defendants 169*l.* 14*s.* as remuneration for his services in preparing a report and plans, &c., in connexion with a sewerage scheme which was being carried out by the Council. The defence was that as the common seal of the defendants was not affixed to the agreement the agreement was not valid and binding on the defendants.

The facts were shortly these:—In July, 1899, the plaintiff was retained by an agreement under the common seal of the defendants to act as engineer to the Council in connexion with certain sewerage works which defendants proposed carrying out in the parishes of Shenfield and Hutton. The plaintiff was employed to prepare plans and specifications, &c., to attend at a local inquiry held on behalf of the Local Government Board, and to obtain tenders for, and superintend the work. In September, 1900, defendants discovered that the drainage of Shenfield Common, which was outside the scope of the original sewerage scheme, was not in a satisfactory condition, and the Council passed a resolution that plaintiff should be asked to visit Shenfield Common and make a report of the work necessary to be done there and to prepare an estimate of the probable cost. The plaintiff accordingly acted as requested. It appeared that the plaintiff was then verbally instructed by defendants to act as engineer in respect of the extension work, and to do like services to those he performed under the agreement of July, 1899. In the correspondence, defendants suggested that the agreement of July, 1899, should apply to and include services in respect of the extension work, and the plaintiff agreed that it should be so on certain terms. The plaintiff did what the defendants requested, and a member of his firm attended the inquiry which resulted in the extension scheme being sanctioned, and later on the plaintiff took out quantities for the work. Tenders were advertised for and were made for the work, but none were accepted. The defendants admitted that the plaintiff had authority from them for all the work he did, that that work was incidental to the duties of the defendants as a District Council, and that his services were in respect of work as to which some sewerage works were necessary. They relied, however, on a number of cases to show the necessity of a corporate body contracting under their common seal.

At the conclusion of the arguments Mr. Justice Darling came to the conclusion that the agreement, in order to be binding upon the defendants, should be under their common seal. He thought that the defendants were entitled to succeed on the point which they had taken and the judgment must be entered for them.

Judgment accordingly.

Mr. C. A. Russell, K.C., and Mr. Montague Lush, appeared as counsel for the plaintiff; and Mr. Macmorran, K.C., and Mr. Naldrett for the defendants.

TRADE LITIGATION IN BLACKBURN.

AT the Blackburn County Court, on the 7th inst., an action was mentioned, in which the plaintiff was Robert Leaver, plumber and glazier, carrying on business at New Chapel-street, Mill Hill, and the defendants were J. Cronshaw, Richard Fletcher, J. H. Fecitt, James Chadburn, W. H. Dent, Richard Highton, and W. J. Tinning, all of whom are master tradesmen connected with the building trade in Blackburn and district, with the exception of the defendant Tinning, who is the secretary of the Building Trades Federation. Mr. A. Read appeared for the plaintiff, and Mr. Rennison represented all the defendants excepting Tinning, for whom Mr. Broadbent appeared.

Mr. Read stated that prior to the month of October, 1900, there had been a dispute between Messrs. Higson & Sons, a firm of master builders in Blackburn, and their workpeople, which had resulted in a strike of the latter, and in connexion with such strike a dispute had been threatened by the workmen's trade union association that unless certain of their terms were complied with a general strike of all trade union workpeople employed in the building trade in Blackburn and district would take place. On Monday, October 22, 1900, the defendants, along with other persons, met at the Exchange Hall, Blackburn, the defendant Tinning being present as the secretary of the workmen's trade union association, known as the Blackburn Building Trades' Federation, and an arrangement, or agreement, by resolution was come to between the defendants and other persons then present, of which the following was substantially a correct record: After hearing a statement from the employers in respect to the contractors working in conjunction with Messrs. Higson & Sons, the federation representatives agreed to allow the present contracts to be completed, the employers, on the other hand, pledging themselves not to have any dealings with the firm until the present dispute was settled satisfactorily to the Masters' Association and the Federation, and that all members of the Building Trades Federation were prohibited from working in conjunction with Messrs. Higson & Sons, joiners, from the morning of the next day. On April 16, 1901, plaintiff entered into a contract for the plumbing work upon two houses in Francis-street, Mill Hill, which were in course of erection, and his men commenced work upon the job on May 2, 1901. At this time Messrs. Higson & Sons, under another contract, were doing the joiners' work for the same houses. The plaintiff at the time had no knowledge of the arrangement made at the last meeting, but entered into the said contract, and as the result of his working in conjunction with Messrs. Higson & Sons, and in compliance with the arrangement in question, his workmen refused to work for him, and he had since been unable to obtain competent workmen, his business had been brought practically to a standstill, and he had sustained a very heavy loss. The plaintiff alleged that the compact was an illegal combination, and that the defendants and the other persons privy to it knew, or ought to have known, that it would, and that it was their intention that it should, injure the business of the firm of Higson & Sons and the business of any other master tradesman who might be working upon any building upon which Messrs. Higson & Sons' men were working, and that the defendants were liable for the consequence of their act in making the compact with the workpeople and their representatives. The plaintiff claimed the sum of 50*l.*, or such other sum as the Court should award, by way of damages, and such other relief by way of injunction as the Court should deem just.

Mr. Read made the usual application for the discovery of documents. He said certain letters had been written having reference to the case, but they were being kept back, although the defendants knew that they affected the case.

His Honour granted the application, and gave instructions that the nature of the joint ownership under which the letters were written be shown.

Mr. Read then asked that the name of a man named Dawson should be added to the list of defendants. He was the secretary of the Master Builders' Association, and was present at the meeting referred to, and took notes on the proceedings. He (Mr. Read) gathered that the bulk of the letters had passed between this man Dawson and Tinning, and if they were both summoned they could not decline to produce the documents which had passed between them.

His Honour ordered that a notice be served on Dawson in accordance with the application.

The case was then adjourned until May 12.—*Blackburn Telegraph.*

APPORTIONMENT OF THE COST OF SEWERING.

AT Highgate, Mr. George Louis Roblin, of Rushacre, Colneyhatch-lane, Muswell-hill, was summoned by the Finsbury Borough Council for the recovery of 35*l.* 5*s.* 1*d.*, the amount of an apportionment of the cost of sewering Colneyhatch-lane. Mr. C. Fleetwood Pritchard, barrister, appeared for the Council, and Mr. Alexander Glen, barrister, appeared for the defendant. The summons formed another stage in proceedings which have extended over several years. Colneyhatch-lane is an ancient thoroughfare forming the boundary between Hornsey and Clerkenwell Detached, the latter, until the passing of the Local Government (London) Act, being under the jurisdiction of the Clerkenwell Vestry, which has been superseded by the Finsbury Borough Council. In 1882 the Clerkenwell Vestry put a new sewer in Colneyhatch-lane, a portion of the thoroughfare, it was said, being widened at the same time. The vestry apportioned the cost of the sewer upon the owners of the property abutting on the lane from the top of Muswell Hill to the parish boundary near Birkbeck-road. Between twenty and thirty of the owners refused to pay, and summonses were issued against all of them, the amount in dispute being altogether about 1,000*l.* It was decided to take the summons against Messrs. Edmondson & Co. as a test case, and this was heard by the Highgate justices on May 16, 1900. It was contended on behalf of the vestry that the sewer in question was laid for the drainage of a "new street," Colneyhatch-lane having, as they alleged, become a new street by reason of the new buildings erected in the Clerkenwell Detached portion. On behalf of the defendants it was contended that the lane had not become a new street, because it had been entirely built upon on the Hornsey side before the passing of the Metropolis Management Act of 1855. The magistrates held that, in order to decide the question, they must look upon the thoroughfare as a whole, and not upon the portion in Clerkenwell only. They dismissed the summons, but consented to state a case, which was argued in the Queen's Bench Division before the Lord Chief Justice and Mr. Justice Kennedy in November, 1900. The appeal was dismissed, but, as the case raised a new point of law, leave to carry the case to the Court of Appeal was granted. In the Court of Appeal on January 6 this year the appeal of the vestry was again dismissed. The vestry, however, refused to be bound by this decision in the case against all the defendants, and now alleged that the portion of the lane between the top of Muswell Hill and Alexandra Park-road had been widened when the sewer in question was laid, and they claimed to be entitled to deal with the widened portion as "a new street." The case against the present defendant was selected as a test case. Mr. Fleetwood Pritchard, in support of his case, relied on the decisions in "White *v.* Fulham," "Richardson *v.* Keswick," and "The Property Exchange *v.* Wandsworth." Mr. J. P. Killick, surveyor of the Finsbury Borough Council, and formerly surveyor to the Clerkenwell Vestry, put in the apportionments made by the vestry. Mr. Glen, in cross-examination, asked what was the width of the lane near the defendant's house in 1878, as shown on the Ordnance map? The Witness: Forty feet. Mr. Glen: And as shown on the Ordnance map of 1896? The Witness: Forty feet. Mr. Glen submitted that, as the vestry claimed to have widened this portion in 1882, the case must fail. The Bench dismissed the summons, and allowed 15 guineas costs against the Finsbury Borough Council.—*Times.*

ALTERING A PUBLIC-HOUSE FRONTAGE.

THE Recorder of Bristol sat at the Guildhall, Bristol, on the 14th inst., to hear an appeal on the part of the Bristol Brewery Co. (Messrs. Georges & Co.) against a decision of the Bristol magistrates relative to an alteration made to the front of the Jolly Colliers public-house, West-street, Bedminster. Mr. Macmorran, K.C., and Mr. Weatherly were counsel for the Brewery Co., and Mr. Foote, K.C., and Mr. Metcalfe were for the Corporation of Bristol. Messrs. Georges were summoned for omitting to rebuild the front of the beerhouse in question, of which they are owners, after pulling

down part of it, according to the provisions of the Bristol Improvement Acts, 1840 and 1847.

The case was heard by the Bristol magistrates on January 31. The particulars then related were that in October some alterations were made at the Jolly Colliers, to effect which part of the front of the house, including the stone sill of the window, was taken down. No notice had then been given the city authorities of the alterations. On October 21 a building inspector passed, and observing the work going on, he reported the matter to Mr. Yabbicom, the District Surveyor. A letter was sent at once to Messrs. Georges (on October 22), and the same day a representative of the builder carrying out the alteration called at the office of the surveyor and made an entry in a register giving the requisite notice. The work was completed without the front being set back, according to the requirements of the Streets Improvement Committee. A week or so later the decision of the magistrates was given. The justices came to the conclusion that the sill must be considered part of the front or external wall. They were, therefore, of opinion that such alteration was made to the external wall as would give the Corporation the right to demand that the owners should set back their premises in the manner demanded. They did not think that the company intended to give instructions that the sill should be removed, but their instructions on that point were not explicit. Under the circumstances, although they had given judgment in accordance with law, they thought it bore with great hardship upon the company, and the justice of the case would be fully met by inflicting upon them a fine of 6d.

Mr. Foote stated the particulars of the case to the Recorder, and a long argument ensued between counsel and his Honour regarding the provisions of the Act bearing upon the matter.

The Recorder allowed the Appeal, and in giving his decision said his impression was that the taking down of a portion of the front for the purposes of rebuilding or repairing did not come within the meaning of Section 17 of the Act. It was a taking down incidental to the alteration of the window-frame. He considered that the question whether the sill was or was not part of the frame was not material. His Honour consented to state a case.—*Bristol Times.*

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

22,549.—AN APPLIANCE FOR LIFTS: *G. W. Jackson and E. O. Fearnley.*—To the bottom of the cage is pivoted a lever which is held up with an adjustable spring and carries a gripper at its remoter end. If the lifting rope break, the spring will come into play so as to pull the lever up and throw the gripper into action that it may stop the falling of the cage.

22,578.—A WATER-PRESSURE INDICATOR: *Lausche Industriewerke A.-G.*—The invention relates to apparatus for transmitting pressure from a conduit to an instrument that works a pressure-recording apparatus or the switch of the circuit of an alarm bell at the waterworks; between the registering apparatus and the water conduit the inventors arrange a set of pipes to which air vessels are attached, and in order that the apparatus shall not respond to temporary changes in the pressure they put in each joint between the flanges of the pipes a metallic disc which is pierced at its middle point and has a covering of wire gauze on each of its two sides.

22,596.—A COLOURING FOR STAINED GLASS: *N. Meurer.*—For imparting a yellow, brown, red, or black hue to the glass the inventor adds to it, when in a molten condition, ground and sifted brown coal or lignite.

22,618.—A FITTING FOR INCANDESCENT GAS-LAMPS: *W. Harris.*—For the purpose of minimising vibration the screw-threaded pipe which takes the burner-fitting is inserted through the upper end of an inverted attachment in the shape of a cup and made of indiarubber or some such material, to which it is fastened with washers. The lower end of the cup is stretched over the upper end of a metallic piece that can be screwed on to the bracket or other holder; the washers may be made of asbestos or other non-heat-conducting substance, and recesses cut in the metallic piece will engage with ribs fashioned upon the indiarubber attachment.

22,620.—AN APPLIANCE FOR USE WITH DOORS: *R. Wall.*—A door can be maintained in the opened position or fastened when it has been shut, by means of a hook that is joined to brackets secured to the frame of the door with two joints at a right angle to one another; the hook is to be engaged with an eye when one wishes to keep the door opened, and into another eye when it is to be shut. In another form the latter eye is discarded, and an arm upon the hook which passes behind a hook upon the door serves to fasten the door.

22,625.—DRESSING-BOXES FOR BATHS: *F. R. R. J. Pearce.*—Two leaves which are joined together with lifting or detachable butt-hinges constitute each partition. The upper end of the inner leaf is sustained with a sliding hinge and a pivot. Its lower end rests upon a rising pivot, having locking recesses and sloped surfaces. Each outer leaf is kept in its place with cross-hooked distance-rods and slotted hinged plates that engage with projections from plates upon the ceiling underneath the gallery of the bath. To the inner leaves are affixed slotted plates which engage with T-headed studs that project from plates at the ends of the seats. The doors and leaves can, upon occasion, be stowed away in recesses made in the walls.

22,661.—IMPROVEMENTS IN FIRE-ESCAPES: *J. C. Hudson.*—For lifting the ladder of a portable fire-escape into a vertical position the hinged frame is turned over, and then a pulling of a crossbar turns the ladder upon its fulcrum on the hose-box until a spring hook at the end of the ladder engages with the lower end of the frame. On the end of the ladder are spikes to be driven into the ground, and a spring pawl is fitted for the winding gear. For the ladders, which can be used separately by lifting the trunnions out of their bearings, confer Nos. 2,841, of 1889; 2,696, of 1892; and 5,330, of 1894.

22,666.—AUTOMATICAL APPARATUS FOR VENTILATORS, AIR-SUPPLY VALVES, &C.: *H. Simpson and R. Thomlinson.*—To meet a change of temperature, and to show its variations at a distance, the air-valve spindle is joined to a lever which is coupled adjustably with another lever pivoted upon the casing, and of which one end constitutes a pointer that traverses a graduated scale, whilst the other end is acted upon by the expanding end-piece of a Tobin tube; at one end of the tube is a nozzle which supports a rubber bag so bound round with wire that it can expand only axially; expansion or contraction of the liquid in the tube is communicated to a tube attached to the bag; other arrangements provide for use of the apparatus to sound a fire-alarm, to open a ventilator, and to regulate the supplies of hot and cold air in a combined system of heating and ventilating in hospitals and other buildings.

22,675.—A HINGE FOR MATHEMATICAL COMPASSES: *E. T. Boden.*—The knee or head joint of a flat-armed compass for mathematical purposes is formed with a portion of an arm which is held with a screw between a bent arm and a plate; a removable clamping-screw turns in engagement with a slot cut in the upper end of the plate; the bent arm restricts the movement of the part, and it may be fashioned so as to form an oblique stop: the contrivance is equally available for use with dividers.

22,730.—A METHOD OF GLAZING ROOFS: *W. R. Lester.*—A leaden or other soft and non-corrodible metallic sheathing is applied to iron or steel astragals, or bars, the covering being shaped or rolled so as to provide drainage channels with bedding-ribs above them and wings that can be folded downwards over the sheets of glass; otherwise, a drawn or rolled sheath of lead is nailed on to a rebated wooden astragal. Confer also Nos. 3,254 and 13,314 of 1884, and 9,422 and 11,831 of 1890.

22,788.—SPIGOT-AND-SOCKET PIPE-JOINTS: *H. L. Doulton and C. E. Morris.*—For earthenware pipes and conduits for electrical cables, and for casting rings of composition around the outside of the spigot and in the inside of the socket. The internal pieces, which are of rubber, are to be expanded by compression through screws and rods, in the case of a mould for joint-rings upon a two-duct conduit. In the case of joint-rings and pipes of an oblique joint for a three-duct rectangular conduit, the spigot joint-pieces are formed upon two opposite sides from a sphere whereof the centre is at the intersection of the axes of the conduit and a cylinder, the axis of the cylinder being at a right-angle to that of the conduit, and upon the other two sides from the cylinder. The joint-surfaces within the socket are parallel throughout to the conduit.

22,810.—APPLIANCES FOR LIFT, SAFETY, AND OTHER VALVES: *G. M. Marchant and W. Marchant.*—A renewable seat is fashioned in the shape of a pierced sleeve, at the lower end of which is a seating-ring. In the sleeve and in the adjacent part of the casing is a groove which takes a packing-ring, which is held down by the cover or by other means. On the cover may be fitted flexible projections for effecting a close joint with the casing of the valve. An expansible joint for the connecting pipes is formed either by putting a conical packing-ring around the pipe and making the ring fast with a screwed sleeve or gland, or by bolting the gland on to the sleeve. A relieving device for the upper portion of a safety-valve comprises a spindle whereof the upper end has a pin with two short levers hanging from its ends. A fork joins a hand-lever to the lower ends of the two short levers, so that when at work it will draw them up against inclined planes upon the valve-casing, and so lift the valve itself.

22,823.—ROOF-GIRDERS: *H. R. Vaughan and Patent Vulcanite Roofing and Asphalte Co.*—The struts of wooden lattice or trellis girders for flat roofs are secured between pairs of beams, bow-shaped ribs, and upper beams. The joists or purlins are fastened between the ends of the struts, and there are vertical or inclined struts for strengthening purposes. A thick layer of sand and gravel is laid over impregnated roofing felt applied, together with vulcanite composition, to the boards which cover the joists. In the case of a Mansard roof having a kerb, and covered with tiles, &c., a similar kind of construction is available, and the inventor claims that large spans can thus be obtained without the employment of columns or obstructive means of support.

22,853.—A METHOD OF HEATING, COOLING AND VENTILATING BUILDINGS: *D. W. Anderson, E. E. Thaw, J. F. Chalmers, & J. T. Wright.*—Air is caused to circulate through passages or conduits which extend in effect throughout the whole area of the walls of the building. For a system of heating, for instance, the interlocking tile-sections of the wall-facing have crossed and perforated projections which will divert ascending currents of air along horizontal conduits: the tiles have grooves and tongues, and their outer surfaces are roughened or grooved to take the plaster; they may also be nailed on to the walls. Radiating-pipes join the heater to the lower conduit between the walls and the bottom tiles, and registers are arranged in convenient places.

22,891.—A CAMERA-LUCIDA FOR MAKING DRAWINGS IN PERSPECTIVE: *G. Buchberger.*—The drawing is produced by the combination of geometrical plane views which are taken, in front of the camera, upon a vertical board that can be turned about its vertical axis for varying the distances from the camera of the different parts of the object: thus the face, for example, of a box may be drawn from a rectangle, then its back-face can be similarly drawn by a further adjustment of the board which carries the views. The perspective drawing will be finished by the joining-up of the corners.

22,900.—A CONTRIVANCE FOR THE FRAME OF A RECIPROCATING SAW: *G. Pickles.*—Short, instead of the customary long, connecting rods are devised, and they are bolted on to a cross-head to which another pair of rods is bolted—the latter being joined to the middle of the moveable saw-frame and passed inside the fixed side-frames, whilst the former rods are set to pass on the outer side of the fixed side-frames.

22,921.—CASEMENT-STAYS: *A. Illidge.*—The stay is jointed to the casement window in such a manner that the holes in it may be adjusted with the holding-peg. The hole in the bent end of the stay through which the main-pin is inserted is either oval or counter-sunk, whereby one can raise the stay, whilst, when the stay is in its normal place, any shaking will be obviated.

23,084.—BRICKLAYING MACHINES: *J. H. Knight.*—For building, say, a 14-in. wall a line of stretchers is laid by hand after the machine has laid a 9-in. course at one side of the wall. The machine is then caused to slide upon cross-rods into position for laying a 9-in. course at the other side, which course is finished with a line of stretchers. Pairs of rollers, coupled with chains and gear-wheels, and moved with a handle, are substituted for racks or chains to move the machine, and its motion on the girder is retarded with a drag or weighted brake-lever, whilst the rollers press the bricks home. By another adaptation a hand-lever and a pawl serve to so press the bricks, a cross-piece on the pawl rests upon a guiding strip; or the four arms or blades of a paddle-wheel, turned by power or the hand, will effect that purpose: a hand-lever fitted with a pawl for engagement with a pierced plate upon the girder feeds the machine forwards. (Cf. also Nos. 21,823 of 1899 and 5,167 of 1900.)

23,160.—AN ADJUSTMENT FOR T-SQUARES: *J. Beddoes.*—In order to maintain the T-square in its place upon the drawing-board, the inventor screws a strap on to the tail of the square, and mounts a rod upon the strap. Lugs from the rod slide along a frame that carries rollers which are sustained with springs, and are forced against the side of the board by another spring set between a collar and a piece that projects from the rod.

23,211.—FIREPROOF PARTITIONS FOR BUILDINGS: *Fireproof Partition Syndicate and T. I. Cammell.*—To enable the partitions to expand under the influence of a fire, the top or bottom of the metallic framework is secured to the joists, whilst the bottom or top is caused to slide upon or between bars correspondingly placed. Slotted standards are bolted to T-irons affixed to the upper joists and will slide upon slotted T-irons affixed to the lower joists. Metallic lathing may be fastened to the standards, or the lower sheets may be caused to slide between lower angle-bars secured to the joists, the upper sheets being bolted between upper angle-bars.

23,222.—INCANDESCENT LIGHTING: *S. Zuckmayer.*—For a powerful light and without compressed air or gas is devised a burner of about double the usual cross-sectional area, combined with a long chimney or flue; noise arising from the vibration of air in a cylindrical chimney is prevented, and a spreading of the flame is enabled, by means of an enlargement of the lower end of the chimney. The gallery is fitted so as to admit only a small quantity of air to cool the burner, or to exclude air altogether. The burner tubes repose loosely upon their fittings, to provide for the easy removal of the parts, and the length of the chimney can be varied in respect of the cross-sectional area of the burner.

MEETINGS.

FRIDAY, APRIL 18.

Architectural Association Discussion Section.—Mr. A. Needham Wilson on "A Tour through the South of France," 7.30 p.m.

Royal Institution.—Right Hon. Sir John H. A. Macdonald on "The Autocar." 9 p.m.

Institution of Mechanical Engineers.—Mr. R. J. Atkinson on "The Standardisation of Pipe Flanges and Flange Fittings." 8 p.m.

Institution of Civil Engineers.—(Students' Meeting).—Mr. H. C. M. Austen on "The Erewash Valley Widening and Toton Sidings." 8 p.m.

SATURDAY, APRIL 19.

British Institute of Certified Carpenters.—Visit to the Prudential Buildings, High Holborn. 3 p.m.

Liverpool Architectural Society (Incorporated).—An Excursion to the new Gladstone Memorial Library at Hawarden. The Church and the Castle will be visited if time permit. Tea at the Glynn Arms Hotel at 5.30.

Edinburgh Architectural Association.—Visits: (1) To Traquair House; (2) The Tower of Innerleithen.

MONDAY, APRIL 21.

Royal Institute of British Architects.—Mr. Alex. N. Paterson, M.A., on "Tradition in Architecture: its Function and Value." 8 p.m.

Society of Arts (Cantor Lectures).—Mr. R. T. Glazebrook, M.A., on "Glass for Optical Instruments." II. 8 p.m.

TUESDAY, APRIL 22.

Institution of Civil Engineers.—Mr. F. W. Webb on "Locomotive Fire-box Stays." 8 p.m.

Builders' Clerks' Benevolent Institution.—Twenty-fourth annual dinner, King's Hall, Holborn Restaurant. 6.30 p.m.

WEDNESDAY, APRIL 23.

Institution of Civil Engineers.—(1) Students' visit to the works of the Great Northern and City Railway, in course of construction. 2.30 p.m. (2) (Special meeting) The tenth "James Forrest" lecture. Sir William Chandler Roberts-Austen, F.R.S., on "Metallurgy in Relation to Engineering." 8 p.m.

Society of Arts.—Professor Silvanus P. Thompson, D.Sc., on "Opto-Technics." 8 p.m.

Edinburgh Architectural Association.—Annual Business Meeting and President's Valedictory Address. 8 p.m.

THURSDAY, APRIL 24.

Society for the Encouragement of the Fine Arts.—Mr. C. E. Keyser on "Some Ancient Wall Paintings."

Institution of Electrical Engineers.—1. Adjourned discussion on paper by Messrs. J. Swinburne and W. R. Cooper on "Problems of Electric Railways." 2. "Form of Model General Conditions, for Use in Connection with Contracts for Plant, Mains, and Apparatus for Electricity Works," as drafted by a Committee, and presented to the Council for adoption as the model general conditions recommended by the Institution of Electrical Engineers. 3. Nominations for the Council for 1902-1903. 8 p.m.

FRIDAY, APRIL 25.

Architectural Association.—1. Mr. E. A. Gruning on "Arbitrations." 2. Nomination of Officers for Session 1902-1903. 7.30 p.m.

Royal Institution.—Mr. J. Mackenzie Davidson, M.B., on "X-Rays and Localisation." 9 p.m.

Glasgow Architectural Craftsmen's Society.—Business meeting.

SATURDAY, APRIL 26.

Architectural Association.—Spring Visit (1) to the new fire-station, Perry-vale, Forest Hill, S.E.; (2) to Horniman's Museum.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

April 3.—By HARDS & BRADLY (at Greenwich).

Greenwich.—6, Luton-pl., f., y.r. 28*l.* £400
54, Winforton-st., f., w.r. 13*l.* 205
6, Maidenstone Hill, f., w.r. 19*l.* 10s. 275
4 and 6, Orchard Hill, f., w.r. 39*l.* 575
8 to 11, Bell-st., f., w.r. 84*l.* 10s. 1,135
21 to 29 (odd), Edward-st., area 9,500 ft., f., w.r. 115*l.* 14s. 1,625
19, Edward-st., with yard and stabling, f., w.r. 58*l.* 10s. 735
49, Church-st., f., y.r. 36*l.* 440
32, Prior-st., u.t. 27 yrs., g.r. 10*l.* 10s., y.r. 28*l.* 130
26, South-st., u.t. 45 yrs., g.r. 5*l.*, y.r. 40*l.* 400
34, South-st., u.t. 43 yrs., g.r. 3s., y.r. 32*l.* 515
Lewisham.—Leahurst-rd., f.g.r. 5*l.*, reversion in 97 yrs. 100

April 4.—By WYATT & SON (at Bognor).

Bognor, Sussex.—London-rd., Marlborough House (S), f., y.r. 30*l.* 830
18 and 19, Chapel-st., u.t. 932 yrs., g.r. nil, w.r. 15*l.* 12s. 740

By ANDREW ORR (at Filey).

Muston, Yorks.—Carr House Farm, 87 a. 3 r. 31 p., f., p. 3,450
Various enclosures of land, 51 a. 1 r. 25 p., f. .. 2,800

April 7.—FIELD & SONS.

Southwark.—Lansdowne-place, a freehold block of land, area 2,600 ft., p. 400
Herne Hill.—27, Milton-rd., u.t. 74½ yrs., g.r. 6*l.* 15s., e.r. 36*l.* 285
Hyde Park.—30, Cambridge-st., u.t. 21 yrs., g.r. 10*l.*, y.r. 100*l.* 880

April 8.—By EDWIN EVANS.

New Oxford-st.—No. 116 (s.), u.t. 23 yrs., g.r. 52*l.* 10s., e.r. 400*l.* 3,000
Fulham.—Melmoth-pl., &c., f.g.r. 475*l.*, u.t. 68 yrs., g.r. 150*l.* 5,950
Balham.—26, Old Park-av., u.t. 80½ yrs., g.r. 10*l.* 10s., p. 695
Stockwell.—3, Stockwell Park-rd., f., y.r. 36*l.* .. 615
Chiswick.—35, Stile Hall-gdns., u.t. 88 yrs., g.r. 8*l.*, y.r. 38*l.* 375

By FRITH, GARLAND, & CO.

Harringay.—104, Allison-rd., u.t. 93 yrs., g.r. 7*l.*, q.r. 35*l.* 340
8, Colina-rd., u.t. 78 yrs., g.r. 6*l.*, e.r. 30*l.* 235
71, Wightman-rd., u.t. 92 yrs., g.r. 7*l.* 7s., y.r. 38*l.* 400
77, Lothair-rd., u.t. 73 yrs., g.r. 6*l.* 6s., e.r. 36*l.* 325
Hornsey.—9, Waldegrave-rd., u.t. 77 yrs., g.r. 6*l.*, e.r. 34*l.* 300
Caledonian-rd.—26, 27, and 29, Market-st., u.t. 51 yrs., g.r. 12*l.*, y.r. 116*l.* £1,290
40, Market-st. (s.), u.t. 40¾ yrs., g.r. 5*l.*, e.r. 50*l.* 350

By E. & H. LUMLEY.

Balham.—222, High-rd., u.t. 33 yrs., g.r. 12*l.*, y.r. 112*l.* 1,030

By ROGERS, CHAPMAN, & THOMAS.

Bayswater.—2, Queen's rd. (s), area 750 ft., f., p. 4,100

By HUMBERT & FLINT (at Watford).

Watford, Herts.—28 and 30, Salisbury-rd., f., w.r. 31*l.* 4s. 350
Liverpool-rd., a freehold building plot 250
Abbots Langley, Herts.—46 to 52 (even), Marlins-sq. f., w.r. 71*l.* 18s. 1,090

By GODFREY C. LAMBERT (at New Barnet).

East Barnet, Herts.—Church Hill, Ivy Cottage, Old School Cottage, and Old School House, f., y.r. 39*l.* 375

April 9.—By MARTEN & CARNARY.

Dulwich.—8, South Croxted-rd., u.t. 54 yrs., g.r. 8*l.*, e.r. 40*l.* 335

By T. G. WHARTON.

Notting Hill.—18, Silver-st. (S) and workshops in rear, f., y.r. 90*l.* 1,700

By DOUGLAS YOUNG & CO.

Wandsworth.—3 and 5, Lebanon-gdns., u.t. 75 yrs., g.r. 13*l.*, y.r. 64*l.* 650
22, 23, and 29, Lebanon-gdns., u.t. 75 yrs., g.r. 18*l.* 10s., y.r. 83*l.* 750
Clapham.—29, Lansdowne-gdns., u.t. 41 yrs., g.r. 9*l.* 9s., q.r. 45*l.* 420

April 9.—By DANIEL WATNEY & SONS.

Vauxhall.—56 to 71, Princes-rd.; 1 to 25 (odd), Vauxhall-st., and 102 to 128 (even), Sancroft-st. (a block of houses, shops, and builder's yard), area 53,300 ft., f., w.r. 1,329*l.* 2s. 15,000
27 to 37 (odd), Vauxhall-st., and 109 and 111, Sancroft-st., area 10,000 ft., f., w.r. 323*l.* 14s. 2,900
91 to 107 (odd), Sancroft-st., and 3 to 21 (odd), Orsett-st., f., w.r. 400*l.* 10s. 4,650
39, 41, 43, and 43a, Vauxhall-st., and 1, Orsett-st., area 4,800 ft., f., w.r. 196*l.* 1,400
49 to 57 (odd), Vauxhall-st., f., w.r. 45*l.* 18s. ... 1,500
47, Vauxhall-st., also the Derby Arms b.-h., and 2 and 4, Orsett-st., f., y.r. 103*l.* 14s. 2,000
6, 6a to 24 (even), Orsett-st., and 1 to 21 (odd) Frank-st., area 17,900 ft., f., w.r. 543*l.* 8s. 5,025
23 to 35 (odd), Frank-st., f., w.r. 157*l.* 6s. 1,400
60, Newburn-st., and 37 to 43 (odd), Frank-st., f., w.r. 130*l.* 1,200
33 to 61 (odd), and 51½, Newburn-st., and 1 to 8, Garden-cottages, area 20,400 ft., f., w.r. 596*l.* 5,600
Newburn-st., Prince of Wales b.-h., f.g.r., 20*l.*, reversion in 45 yrs. 630
62 to 72 (even), Newburn-st.; 2 to 38 (even), Frank-st.; 1 to 23 (odd), Malmesey-pl.; 1 to 9, Hampshire-st.; 59 to 83 (odd), Vauxhall-st.: area 44,640 ft., f., w.r. 1,517*l.* 15s. 12,200
40, 42, and 44, Vauxhall-st., f., w.r. 136*l.* 10s. 1,425
Vauxhall-st., The Eclipse b.-h., f., y.r. 62*l.* .. 1,350
1, 3, 5 and 7, Jonathan-st., f., w.r. 122*l.* 4s. 1,100
34 and 36, Vauxhall-st. (s.), f., y.r. 75*l.* 16s. 1,025
18 to 32 (even), Vauxhall-st., f., w.r. 275*l.* 12s. .. 3,000
Vauxhall-st., the George and Dragon p.-h., a freehold rental of 80*l.*, reversion in 15 yrs. .. 3,150
2 to 14 (even), Vauxhall-st., area 18,400 ft., f., w.r. 254*l.* 16s. 3,000
2 [to 8 (even), Jonathan-st.; 1 to 6, 8 to 12, St. George's-cottages, area 13,000 ft., f., w.r. 354*l.* 18s. 2,800

April 10.—By COOPER & GOULDING.

Wandsworth.—186, 190, 192, and 194, Earlsfield-rd., u.t. 89 yrs., g.r. 24*l.*, w.r. 148*l.* 4s. 1,150
Holloway.—1, Yerbury-rd., u.t. 65 yrs., g.r. 12*l.*, y.r. 55*l.* 520
272, Yerbury-rd., u.t. 65 yrs., g.r. 9*l.* 10s., y.r. 45*l.* 570
97, Lady Margaret-rd., u.t. 67 yrs., g.r. 8*l.* 15s., y.r. 42*l.* 585
Kentish Town.—49 and 51, Prince of Wales-cres., u.t. 20 yrs., g.r. 10*l.* 10s., y.r. 68*l.* 380

By FAREBROTHER, ELLIS, & CO.

Paddington.—3, Eastbourne-mews (C. arch), u.t. 36½ yrs., g.r. 5*l.*, y.r. 20*l.* 235
Hampstead.—17, New-end, f., y.r. 20*l.* 255
7, New-end-sq., f., y.r. 20*l.* 400

By PHIPPS GIBSON, & CO.

Purleigh, Essex.—Oakleigh Lodge and 4 acres, f., p. 600
Dulwich.—2, Eastmearn-rd., u.t. 81½ yrs., g.r. 8*l.* 10s., e.r. 50*l.* 650
Norwood.—77 and 79, Thurleston-rd., f., y.r. 74*l.* 1,075
Thurleston-rd., f.g.r. 7*l.* 10s., reversion in 88 yrs. 180

By CHARLES HALL.

Balham.—115, Ramsden-rd., u.t. 66 yrs., g.r. 5*l.* 12s. 6d., e.r. 32*l.* 320

By PERCIVAL HODSON.

Holloway.—62, Grove-rd. (S.), u.t. 47 yrs., g.r. 8*l.*, y.r. 42*l.* 400
Stroud Green.—86, Upper Tollington Pk., u.t. 74½ yrs., g.r. 12*l.* 10s., e.r. 70*l.* 650

By HOLCOMBE, BETTS, & WEST.

Surbiton, Surrey.—3, 6, and 7, Wyburn-villas, f., y.r. 175*l.* 2,105
South ter., f.g.r. 20*l.*, reversion in 45 yrs. 910
7, South-ter., f., y.r. 55*l.* 910
4, Wyburn-villas, f., p. 580
Norbiton, Surrey.—1, Coombe-lane, f., w.r. 16*l.* 18s. 195

C. C. & T. MOORE.

Oxford-street.—119, Wardour-st. (S), u.t. 15 yrs., g.r. 70*l.*, w.r. 172*l.* 18s. 430
Hackney-rd.—80, Pritchard's-rd., u.t. 38 yrs., g.r. 3*l.* 3s., w.r. 31*l.* 4s. 225
Mile End.—133, Coutt's-rd., f.; also 135, Coutt's-rd., u.t. 5 yrs., g.r. 27*l.*, e.r. 67*l.* 12s. 350
Snaresbrook.—Hermon Hill, 1, Oaklands, f., e.r. 80*l.* 1,170

April 10.—NEWBON, EDWARDS, & SHEPHARD.

Marylebone.—35, Great Titchfield-st., u.t. 30½ yrs., g.r. 24*l.*, y.r. 100*l.* 920
Highbury.—18 and 19, Aberdeen Pk., u.t. 53 yrs., g.r. 31*l.*, y.r. 240*l.* 1,240
11, Highbury-grove, f., y.r. 70*l.* 1,160
Crouch End.—72 to 78 (even), Park-rd., u.t. 30 yrs., g.r. 15*l.*, y.r. 119*l.* 680
Clapton.—30, Elmcroft-st., u.t. 90 yrs., g.r. 5*l.* 15s., w.r. 41*l.* 12s. 380

By WORSFOLD & HAYWARD.

Peckham.—50 to 58 (even), Clifton-rd., u.t. 30 yrs., g.r. 20*l.*, w.r. 184*l.* 12s. £1,100

By STIMSON & SONS.

Bloomsbury.—131, Gower-st., u.t. 16½ yrs., g.r. 15*l.*, y.r. 140*l.* 950
Camberwell.—62, Grove Hill-rd., u.t. 74½ yrs., g.r. 7*l.*, y.r. 30*l.* 285
1 and 3, Bromar-rd., u.t. 74½ yrs., g.r. 13*l.*, y.r. 60*l.* 545
Forest Gate.—208, 210, 212 and 214, Romford-rd., u.t. 37½ yrs., g.r. 22*l.*, y.r. 150*l.* 1,320
Herne Hill.—36, Fawnbrake-av., u.t. 93½ yrs., g.r. 7*l.*, e.r. 45*l.* 510
Peckham.—29, Banstead-st., u.t. 74½ yrs., g.r. 4*l.* 15s., w.r. 39*l.* 180
South Kensington.—5, Cromwell-cres., u.t. 66 yrs., g.r. 12*l.*, e.r. 100*l.* 740
Sydenham.—Panmure-rd., Hemsill, u.t. 60½ yrs., g.r. 8*l.* 10s., y.r. 40*l.* 300
Walthamstow.—118, 120, 122, 124, 130 and 132, Maynard-rd., f., y.r. 110*l.* 1,950

By JOSEPH STOWER.

Mill Hill.—1 and 2, Station-ter. (S), u.t. 95 yrs., g.r. 15*l.*, y.r. 80*l.* 600
Lambeth.—16 to 28 (even), Everett-st., u.t. 41 yrs., g.r. 22*l.* 10s., w.r. 152*l.* 2s. 610
Hampstead.—Buckland-cres., i.g.r. 36*l.*, u.t. 49½ yrs., g.r. 4*l.* 610
Belsize Pk., i.g.r. 275*l.*, u.t. 49½ yrs., g.r. nil. 11s. 5,105
Crossfield-rd., i.g.r. 21*l.*, u.t. 49½ yrs., g.r. 4*l.* 390
Lancaster-rd., i.g.r. 14*l.*, u.t. 49½ yrs., g.r. nil. 205
Belsize-sq., i.g.r. 700*l.*, u.t. 49½ yrs., g.r. nil. 6,730
Belsize Pk.-gdns., i.g.r. 140*l.*, u.t. 49½ yrs., g.r. 3*l.* 6*d.* 2,690
Belsize-av., i.g.r. 16*l.*, u.t. 49½ yrs., g.r. 1s. 300

By BATCHELAR & SON (at Croydon).

Carshalton.—Westmead-rd., freehold premises (formerly the Albany Laundry), f., p. 300

By HOOKER & WEBB (at Croydon).

Croydon.—24 and 25, Waddon New-rd., and 2 and 3, Upper Drayton-pl., f., w.r. 62*l.* 8s. 320
1, Sutherland-rd., f., w.r. 26*l.* 205
Beddington.—Guy-rd., The Forge, with goodwill of blacksmith's business, f., p. 160

April 12.—By C. W. DAVIES & SON.

Islington.—5, Cambridge-ter., u.t. 456 yrs., g.r. 8*l.*, e.r. 30*l.* 660
6, Oxford-ter., u.t. 452 yrs., g.r. 8*l.*, w.r. 62*l.* 8s. 590
Stoke Newington.—148, Albion-rd. (S), f., y.r. 70*l.* 1,175
New Cross.—35 to 41 (odd), Somerville-rd., u.t. 48 yrs., g.r. nil, w.r. 140*l.* 8s. 1,395
62, Somerville-rd., u.t. 48 yrs., g.r. nil, w.r. 33*l.* 16s. 310
22 and 24, Bolden-st., u.t. 65 yrs., g.r. 9*l.*, q.r. 56*l.* 775

By HENRY HOLMES & CO.

Kentish Town.—51, Castle-rd., u.t. 33 yrs., g.r. 5*l.* 10s., y.r. 36*l.* 960
45, Castle-rd., u.t. 33 yrs., g.r. nil, y.r. 36*l.* 380
Haverstock Hill.—41, Herbert-st. u.t. 43 yrs., g.r. 7*l.* 8s., w.r. 50*l.* 14s. 260
Cricklewood.—17, Prospect-rd., u.t. 77 yrs., g.r. 5*l.*, w.r. 31*l.* 4s. 170

By HUNTER & HUNTER.

Peckham.—210, High-st., (S), f. y.r. 60*l.* 1,150

By GEO. E. LUCK.

Hornsey Rise.—3, Cromartie-rd., f., e.r. 55*l.* 700
Crouch End.—51, Weston-park., u.t. 79¾ yrs. g.r. 10*l.*, e.r. 55*l.* 535

By E. & S. SMITH.

City of London.—1 and 2, Moorgate-st. Buildings (offices, &c.), u.t. 32 yrs., g.r. 45*l.* 3s., y.r. 1,165*l.* 8,900
Islington.—12, Theberton-st., u.t. 13 yrs., g.r. 6*l.* 16s., y.r. 38*l.* 175
Clerkenwell.—45, Northampton-rd., u.t. 29½ yrs., g.r. 8*l.*, w.r. 52*l.* 230

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e. for estimated rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.			
Hard Stocks	1	11	6	per 1,000 alongside, in river.		
Rough Stocks and Grizzles	1	9	6	,,	,,	,,
Facing Stocks	2	12	0	,,	,,	,,
Shippers	2	5	0	,,	,,	,,
Flettons	1	8	0	,,	at railway depôt.	
Red Wire Cuts ..	1	12	0	,,	,,	,,
Best Fareham Red	3	12	0	,,	,,	,,
Best Red Pressed Ruabon Facing.	5	5	0	,,	,,	,,
Best Blue Pressed Staffordshire ..	4	6	6	,,		,,
Do., Bullnose	4	10	0	,,	,,	,,
Best Stourbridge Fire Bricks	4	5	6	,,	,,	,,
GLAZED BRICKS						
Best White and Ivory Glazed Stretchers.....	13	0	0	,,	,,	
Headers	12	0	0	,,	,,	
Quoins, Bullnose, and Flats	17	0	0	,,	,,	,,
Double Stretchers	19	0	0	,,	,,	,,
Double Headers..	16	0	0	,,	,,	,,
One Side and two Ends	19	0	0	,,	,,	,,

[See also p. 409.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered
*Homes for Nurses	Hartshill (Stoke-on-Trent)	.....	June 16

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tender, &c., Supplied by	Tenders to be delivered
Asylum Extensions, Blackadon, Plymouth	.....	Hine & Odgers, Architects, Lockyer-street, Plymouth	April 22
Water-meter House, Cross Hill	Lancaster Corporation	Borough Surveyor, Town Hall, Lancaster	do.
Schools, Paisley-street	Kingston-on-Hull School Board	Surveyor, School Board Offices, Albion-street, Hull	do.
Two Houses, Lower-road, Londonderry	Mr. J. Williams	W. R. Pinkerton, Architect, 11, Shipquay-street, Londonderry	do.
Sewers, &c., Queen's-road	Winchester Town Council	City Surveyor, Town Hall, Winchester	do.
Additions to Schools	Whickham (Durham) School Board	J. W. Rounthwaite, Architect, 13, Mosley-street, Newcastle	do.
*Making-up Roads, &c.	Tottenham U.D.C.	Council's Engineer, 712, High-road, Tottenham	do.
*Supply of Road Materials	Bromley U.D.C.	Council's Surveyor, Bromley, Kent	do.
Rebuilding Church, Wednesfield	.....	F. J. Beck, Architect, Wolverhampton	April 23
Villas, Chellow Dean, Bradford	.....	Fairbank & Wall, Architects, Bradford	do.
Chapel, Ogmore, Glam.	.....	W. Richards, The Square, Ogmore Vale, Glam.	do.
Additions to Workhouse	Elham (Kent) Guardians	A. Bromley, Architect, Radnor Chambers, Folkestone	do.
House and Shop, London-road, Carlisle	Messrs. J. Baty & Sons	J. H. Martindale, Architect, Carlisle	do.
Enlarging St. John's Church, Canton, Cardiff	Rev. D. Davies	G. E. Halliday, Architect, Cardiff	do.
Water Supply Works	Hamilton (N.B.) Water Commiars	W. R. Copland, Civil Engineer, 146, West Regent-street, Glasgow	do.
Additions to Workhouse	Glennamaddy (Ireland) Guardians	R. J. Kirwin, Architect, Glennamaddy	do.
Schools, Rhosddu, Wrexham	.....	Rev. John Thomas, 47, Lorne-street, Rhosddu, Wrexham	April 24
Road Works, Lodge Estate, Rugby	.....	J. T. Franklin, Architect, Regent-street, Rugby	do.
Monument, Grand Parade, Cork	.....	D. J. Coakley, 1, Charlotte-quay, Cork	do.
Shed, &c., Arclid	Congleton R.D.C.	A. Price, Architect, Elworth	do.
Ten Cottages, New-street, Ash-next-Sandwich	.....	F. J. Ralph, Lord Warden Inn, Sandwich	do.
Main Laying, North Terrace	Mildenhall Gas Co., Ltd.	O. F. Read, Gas Offices, Mildenhall	do.
Business Premises, New George-street, Elton	Bury District Co-op. Soc., Ltd.	D. Hardman, Architect, Agar-street, Bury	do.
Business Premises, High-street, Belfast	Messrs. J. Riddel & Sons	S. P. Close, Architect, Donegall-square, Belfast	do.
Road Metal, &c.	Houghton-le-Spring (Dur.) R.D.C.	D. Balfour, Civil Engineer, Council Offices, Houghton-le-Spring	do.
*Supply of Timber	Director-General, Ordnance Survey	Ordnance Survey Office, Southampton	do.
Thirty-four Houses, Godre Aman, Aberaman	.....	T. Roderick, Architect, Aberdare	April 23
Police Buildings, &c., Uckfield	East Sussex County Council	F. J. Wood, Surveyor, County Hall, Lewes	do.
Granite Road Metal (2,000 tons)	Newmarket U.D.C.	S. J. Ennion, Deva Chambers, Newmarket	do.
Three Houses, West End Park, Londonderry	Captain Cassidy	J. P. M'Grath, Architect, 28, Carlisle-road, Londonderry	do.
Foundation Works	Boston (Lincs.) Town Council	J. Rowell, Architect, Borough Offices, Boston	do.
Bridge Works, &c., Aylestone	Leicester Corporation	E. G. Mawbey, Civil Engineer, Town Hall, Leicester	do.
Cast Iron Water Main, Dittisham	Totnes R.D.C.	W. F. Tollit, Surveyor, Totnes	do.
Earth Closets, Schools, Ashford, Middlesex	West London School District	Superintendent, at Schools, Ashford	do.
Setting Boilers, &c. (Electric Lighting)	Maidenhead Town Council	Council's Surveyor, Guildhall, Maidenhead	do.
Asylum Works, Garlands, near Carlisle	.....	G. D. Oliver, Architect, 5, Lowther-street, Carlisle	April 26
Additions, &c., to Moravian Church, Swindon	Cockermouth R.D.C.	R. J. Beswick, Architect, 35, Regent-street, Swindon	do.
Bridges, Greentrees, &c.	Marquis Conyngham's Trustees	J. B. Wilson, Civil Engineer, Court Buildings, Cockermouth	do.
Farm Buildings, Supperton	Metropolitan Asylums Board	G. Smith, Architect, Station-road, Canterbury	April 27
*Hair Picking, &c., Rooms, Leavesden Asym., Watford	.....	Office of the Board, Embankment, E.C.	April 28
Inn, Gothenburg, Limphinnans (N.B.)	Esh Co-operative Society	W. Birrell, Architect, 200, High-street, Kirkcaldy	do.
School, Fleur-de-Lis, Monmouth	Salford Corporation	R. L. Roberts, The Firs, Abercarn, Mon.	do.
Business Premises, near Waterhouses	Montrose Royal Asylum	W. & T. R. Milburn, Architects, Sunderland	do.
Alterations to Technical Institute	Benwell and Fenham U.D.C.	H. Lord, Architect, Deansgate, Manchester	do.
Villa, Sunnyside, near Montrose	Acton District Council	J. Sim, Architect, 100, High-street, Montrose	do.
Sewers, &c., Scotswood, Northumberland	Sevenoaks R.D.C.	H. W. Taylor, C.E., St. Nicholas Chmbrs Newcastle-on-Tyne	do.
*Making-up Cunnington-lane	Malling (Kent) R.D.C.	Council's Surveyor, 242, High-street, Acton	April 29
*Penshurst Waterworks	Colne and Holme Hospital Com.	T. Hennell, Engineer, 6, Delahay-street, Westminster, S.W.	do.
Sewers, Aylesford and Burham	.....	H. Robinson, C.E., Parliament Mansns., Victoria-st., Westminster	do.
Hospital, Spring Hill, Meltham, near Huddersfield	North Eastern Railway Co.	J. Berry, Architect, 3, Market-place, Huddersfield	do.
Reconstructing Bridge, Charvill, Berks	Biggleswade Water Board	J. Morris, Surveyor, 156, Friar-street, Reading	April 30
Subway Works, Scarborough	Wood Green U.D.C.	W. J. Cudworth, Engineer, York	do.
Well Sinking, near New Spring Farm	Ealing Town Council	G. F. Deacon, Engineer, 16, Great George-street, S.W.	do.
*Making-up Dagmar-road	.....	Council's Surveyor, Town Hall, Wood Green, N.	do.
*Making-up Roads	West Ham Council	Council's Engineer, Town Hall, Ealing, W.	May 1
Additions to Church, Ventonleague, Hayle, Cornwall	.....	S. Hill, Architect, Green-lane, Redruth	May 2
*Farm Buildings, Chadwell Heath Asylum, Essex	Hornsey U.D.C.	Council's Engineer, Town Hall, West Ham, E.	do.
*Seven Houses and Shops, Wallington, Surrey	Parish of Fulham	Warrant & Stupart, Architects, 285, Green-lanes, Harringay, N.	May 5
*Making Good Roads	St. Pancras Guardians	Council's Engineer, Southwood-lane, Highgate, N.	do.
*Relaying Floors at St. Dunstan's-road Infirmary	.....	Clerk to the Guardians, Guardians' Offices, Fulham Palace-road	May 8
*Receiving Home for Children	Croydon School Board	A. E. Pridmore, Architect, 2 Broad-street Buildings, E.C.	do.
Rebuilding 5, Hamilton-terrace, Bundoran	Rochester Corporation	S. Jevons, Architect, Armagh	May 10
*Supply of Oils and Colours, &c.	Dorset County Lunatic Asylum	The Clerk, Katharine-street, Croydon	May 13
*Cast Iron Pipes, Valves, and Hydrants	North Staffs Infirmary & Eye Hosp.	City Surveyor, Guildhall, Rochester	May 15
*House for Private Patients	Council of Dunbar	G. T. Hine, Architect, 35, Parliament-street, S.W.	May 22
*Home for Nurses, Hartshill	.....	Not stated	June 2
Drainage Works, Belhaven, N.B.	.....	W. A. Carter, Civil Engineer, 5, St. Andrew-square, Edinburgh	No date
Additions to Washington Church, Newcastle	Mr. A. P. Bridson	Hicks & Charlewood, Architects, 67, Westgate-road, Newcastle	do.
Church, Windsor-road, Cardiff	Mr. J. W. Dixon	Seddon & Carter, Architects, St. Mary-street, Cardiff	do.
Mission Room, Blaina, Mon.	.....	do.	do.
Additions to Farm, Blawith, Alverston	West London School District	J. Bell, Architect, Coniston	do.
House, Esholt, Yorks	Maidenhead Town Council	W. Jones, Architect, 2, Hamilton-place, Leeds	do.
Three Shops, Fairfield, Manchester	.....	Burton & Percival, Archs., 150A, Stamford-st., Ashton-under-Lyne	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Required.	Salary.	Application to be in
*Buildings and Drains Inspector	Croydon Borough Council	3l. per week	April 24
*Civil Engineering Assistant	Middlesbrough Corporation	Not stated	do.
*Architectural Assistant	Southampton Corporation	130l.	April 26
*General Assistant	do.	104l.	do.
*Assistant Building Inspector	do.	104l.	do.
*Resident Working Engineer	West Ham Union	130l.	April 30
*Working Engineer	do.	2l. 5s. per week	do.
*Assistant Surveyor	Croydon School Board	150l.	May 5

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p. iv.* *Contracts, pp. iv. vi. viii. & x.* *Public Appointments, xix.*

PRICES CURRENT (*Continued*).

BRICKS, &c.

	£	s.	d.			
Two Sides and one End	20	0	0	per 1,000	at railway depot.	
Splays, Chamfered, Squints	20	0	0	,,	,,	,,
Best Dipped Salt Glazed Stretchers and Headers	12	0	0	,,	,,	,,
Quoins, Bullnose, and Flats	14	0	0	,,	,,	,,
Double Stretchers	13	0	0	,,	,,	,,
Double Headers	14	0	0	,,	,,	,,
One Side and two Ends	15	0	0	,,	,,	,,
Two Sides and one End	15	0	0	,,	,,	,,
Splays, Chamfered, Squints	14	0	0	,,	,,	,,
Seconds Quality White and Dipped Salt Glazed	9	0	0	,,	less than best.	
Thames and Pit Sand			7	3	per yard, delivered.	
Thames Ballast			6	0	,,	,,
Best Portland Cement			32	0	per ton, delivered.	
Best Ground Blue Lias Lime			25	0	,,	,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 11s. 0d. per yard, delivered.
Stourbridge Fire-clay in sacks, 26s. 6d. per ton at rly. dpt.

STONE.

	s.	d.			
Ancaster in blocks	2	11	per ft. cube, deld.	rly. depot	
Bath ,,	1	7	,,	,,	
Farleigh Down Bath	1	8	,,	,,	
Beer in blocks	1	6	,,	,,	
Grinshill ,,	1	10	,,	,,	
Brown Portland in blocks	2	2	,,	,,	
Darley Dale in blocks	2	4	,,	,,	
Red Corsehill ,,	2	5	,,	,,	
Closeburn Red Freestone	2	3	,,	,,	
Red Mansfield ,,	2	4	,,	,,	
Hard York in blocks	2	10	,,	,,	
Hard York 6 in. sawn both sides landings, to sizes (under 40 ft. sup.)	2	8	per ft. super. at rly. depôt.		
,, ,, 6 in. Rubbed Ditto	3	0	,,	,,	
,, ,, 3 in. sawn both sides slabs (random sizes)	1	3	,,	,,	
,, ,, 2 in. self-faced Ditto	0	9½	,,	,,	
Hopton Wood (Hard Bed) in blocks	2	3 per ft. cube. deld. rly. depôt			
,, ,, ,, 6 in. sawn both sides landings	2	7 per ft. super. deld. rly. depôt.			
,, ,, ,, 3 in. do.	1	2½	,,	,,	

SLATES.

in.	in.	£	s.	d.		
20×10 best blue Bangor		12	0	0	per 1000 of 1200 at ry. dep.	
,, best seconds	,,	11	10	0	,,	,,
16×8 best	,,	6	15	0	,,	,,
20×10 best blue Portmadoc		11	5	0	,,	,,
16×8 best blue Portmadoc		6	0	0	,,	,,
20×10 best Eureka unfading green		12	2	6	,,	,,
16×8 ,,	,,	7	5	0	,,	,,
20×10 permanent green		10	5	0	,,	,,
16×8 ,,	,,	5	17	6	,,	,,

TILES.

	s.	d.			
Best plain red roofing tiles	41	6	per 1,000, at rly. depôt.		
Hip and valley tiles	3	7	per doz.	,,	,,
Best Broseley tiles	48	6	per 1,000	,,	,,
Hip and valley tiles	4	0	per doz.	,,	,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57	6	per 1,000	,,	,,
Do. ornamental Do.	60	0	,,	,,	,,
Hip tiles	4	0	per doz.	,,	,,
Valley tiles	3	9	,,	,,	,,
Best Red or Mottled Staffordshire Do. (Peakes)	50	0	per 1,000	,,	,,
Hip tiles	4	1	per doz.	,,	,,
Valley tiles	3	8	,,	,,	,,

WOOD.

BUILDING WOOD.—YELLOW.

	At per standard. £	s.	d.	£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	14	10	0	16	0	0
Deals: best 3 by 9	13	10	0	15	0	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in	10	10		11	10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in.		
Deals: seconds	1	0	0	less than best		
Battens: seconds	0	10	0	,, ,, ,,		
2 in. by 4 in. and 2 in. by 6 in.	8	10	0	9	10	0
1¼ in. by 4½ in. and 2 in by 5 in.	8	0	0	9	0	0
Foreign Sawn Boards—1 in. by 12 in. by 12 in.	0	10	0	more than battens.		
1½ in.	1	0	0	,,		
Fir timber: Best middling Dantzig or Memel (average specification)	At per load of 50 ft.					
Seconds	4	10	0	5	0	0
Small timber (8 in. to 10 in.)	4	5	0	4	10	0
Swedish balks	3	12	6	3	13	0
Pitch-pine timber (50 ft.)	3	15	0	3	0	0
JOINERS' WOOD.	3	0	0	3	10	0
White Sea: First yellow deals, 3 in. by 11 in.	At per standard.					
3 in. by 9 in.	22	0	0	23	0	0
Battens, 2½ in. and 3 in. by 7 in.	20	0	0	21	0	0
Second yellow deals, 3 in. by 11 in.	16	10	0	18	0	0
,, ,, 3 in. by 9 in.	18	0	0	20	0	0
Battens, 2½ in. and 3 in. by 7 in.	16	10	0	18	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	13	0	0	14	0	0
Battens, 2½ in. and 3 in. by 7 in.	14	0	0	15	10	0
	11	10	0	12	10	0

PRICES CURRENT (*Continued*).

WOOD.

	At per standard. £	s.	d.	£	s.	d.
Petersburg: first yellow deals, 3 in by 11 in.	20	0	0	21	0	0
Do. 3 in. by 9 in.	17	0	0	18	0	0
Battens	13	0	0	14	0	0
Second yellow deals, 3 in. by 11 in.	15	0	0	16	10	0
Do. 3 in. by 9 in.	13	10	0	14	10	0
Battens	11	0	0	12	0	0
Third yellow deals, 3 in. by 11 in.	12	10	0	13	10	0
Do. 3 in. by 9 in.	12	0	0	13	0	0
Battens	10	0	0	11	0	0
White Sea and Petersburg:—						
First white deals, 3 in. by 11 in.	14	0	0	15	0	0
,, ,, ,, 3 in. by 9 in.	13	0	0	14	0	0
Battens	11	0	0	12	0	0
Second white deals 3 in. by 11 in.	13	0	0	14	0	0
,, ,, ,, 3 in. by 9 in.	12	0	0	13	0	0
,, ,, ,, battens	9	10	0	10	10	0
Pitch-pine: deals	16	0	0	18	0	0
Under 2 in. thick extra	0	10	0	1	0	0
Yellow Pine—First, regular sizes	32	0	0	33	10	0
Broads (12 in. and up)	2	0	0	more.		
Oddments	22	0	0	24	0	0
Seconds, regular sizes	24	10	0	26	10	0
Yellow Pine Oddments	20	0	0	22	0	0
Kauri Pine—Planks, per ft. cube	0	3	6	0	4	6
Danzig and Stettin Oak Logs—Large, per ft. cube	0	2	6	0	3	0
Small ,, ,,	0	2	3	0	2	6
Wainscot Oak Logs, per ft. cube	0	3	0	0	5	6
Dry Wainscot Oak, per ft. sup. as inch	0	0	7½	0	0	8
1¼ in. do. do.	0	0	7	-	-	-
Dry Mahogany—Honduras, Tabasco, per ft. sup. as inch	0	0	9	0	0	11
Selected, Figury, per ft. sup. as inch	0	1	6	0	2	0
Dry Walnut, American, per ft. sup. as inch	0	0	10	0	1	0
Teak, per load	16	0	0	20	0	0
American Whitewood Planks—Per ft. cube	0	3	0	0	3	6
Prepared Flooring—	Per square.					
1 in. by 7 in. yellow, planed and shot	0	13	0	0	16	6
1 in. by 7 in. yellow, planed and matched	0	13	6	0	17	6
1¼ in. by 7 in. yellow, planed and matched	0	15	0	1	0	0
6 in. at 6d. per square less than 7 in.						
1 in. by 7 in. white, planed and shot	0	11	0	0	12	6
1 in. by 7 in. white, planed and matched	0	11	6	0	13	6
1¼ in. by 7 in. white, planed and matched	0	13	6	0	15	6
6 in. at 6d. per square less than 7 in.						

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.	£	s.	d.
Rolled Steel Joists, ordinary sections	6	2	6	7	2	6
Compound Girders ,, ,,	7	17	6	8	17	6
Angles, Tees and Channels, ordinary sections	7	17	6	8	17	6
Flitch Plates	8	5	0	8	15	0
Cast Iron Columns and Stanchions, including ordinary patterns	7	0	0	8	0	0

METALS.

	Per ton, in London. £	s.	d.	£	s.	d.
IRON—						
Common Bars	7	15	0	8	5	0
Staffordshire Crown Bars, good merchant quality	8	5	0	8	15	0
Staffordshire "Marked Bars"	10	10	0	-	-	-
Mild Steel Bars	9	0	0	9	10	0
Hoop Iron, basis price	9	5	0	9	10	0
,, ,, galvanised	16	0	0	-	-	-
(* And upwards, according to size and gauge.)						
Sheet Iron, Black.—						
Ordinary sizes to 20 g.	10	0	0	-	-	-
,, ,, to 24 g.	11	0	0	-	-	-
,, ,, to 26 g.	12	10	0	-	-	-
Sheet Iron, Galvanised, flat, ordinary quality.—						
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	12	15	0	-	-	-
,, ,, 22 g. and 24 g.	13	5	0	-	-	-
,, ,, 26 g.	14	5	0	-	-	-
Sheet Iron, Galvanised, flat, best quality:—						
Ordinary sizes to 20 g.	16	0	0	-	-	-
,, ,, 22 g. and 24 g.	16	10	0	-	-	-
,, ,, 26 g.	18	0	0	-	-	-
Galvanised Corrugated Sheets.—						
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12	15	0	-	-	-
,, ,, 22 g. and 24 g.	13	5	0	-	-	-
,, ,, 26 g.	14	5	0	-	-	-
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	12	0	0	-	-	-
,, ,, 22 g. and 24 g.	13	0	0	-	-	-
,, ,, 26 g.	14	5	0	-	-	-
Cut nails, 3 in. to 6 in. (Under 3 in. usual trade extras.)	9	5	0	9	15	0

LEAD, &c.

	Per ton, in London. £	s.	d.	£	s.	d.
LEAD—Sheet, English, 3 lbs. & up.	13	15	0	-	-	-
Pipe in coils	14	5	0	-	-	-
Soil Pipe	16	15	0	-	-	-
ZINC—Sheet—						
Vieille Montagne ton	24	10	0	-	-	-
Silesian	24	0	0	-	-	-
COPPER—						
Strong Sheet per lb.	0	1	0	-	-	-
Thin ,,	0	1	1½	-	-	-
Copper nails ,,	0	1	1½	-	-	-
BRASS—						
Strong Sheet ,,	0	0	11	-	-	-
Thin ,,	0	1	1	-	-	-
TIN—English Ingots ,,	0	1	3	-	-	-
SOLDER—Plumbers' ,,	0	0	6½	-	-	-
Tinmen's ,,	0	0	8	-	-	-
Blowpipe ,,	0	0	9	-	-	-

PRICES CURRENT (*Continued*).

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2½d.	per ft.	delivered.
,, fourths	2¾d.	,,	,,
21 oz. thirds	3¼d.	,,	,,
,, fourths	3d.	,,	,,
26 oz. thirds	4¼d.	,,	,,
,, fourths	4d.	,,	,,
32 oz. thirds	5¼d.	,,	,,
,, fourths	5d.	,,	,,
Fluted sheet, 15 oz.	3d.	,,	,,
,, 21 ,,	4d.	,,	,,
½ Hartley's Rolled Plate	2d.	,,	,,
⅜ ,, ,, ,,	2¼d.	,,	,,
½ ,, ,, ,,	2½d.	,,	,,

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	2	6
,, ,, ,, in barrels	,,	0	2	1½
,, ,, ,, in drums	,,	0	3	0
Boiled ,, ,, in pipes	,,	0	2	1½
,, ,, ,, in barrels	,,	0	3	0
,, ,, ,, in drums	,,	0	3	2
Turpentine, in barrels	,,	0	2	6
,, in drums	,,	0	2	8
Genuine Ground English White Lead	per ton	21	0	0
Red Lead, Dry	,,	20	10	0
Best Linseed Oil Putty	per cwt.	0	2	6
Stockholm Tar	per barrel	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Elastic Copal Varnish for outside work	0	16	6
Best Elastic Copal Varnish for outside work	1	0	0
Best Elastic Carriage Varnish for outside work	0	16	0
Best Hard Oak Varnish for inside work	0	10	6
Best Extra Hard Church Oak Varnish for inside work	0	10	6
Fine Hard Copal Varnish for inside work	0	16	0
Best Hard Copal Varnish for inside work	1	0	0
Best Hard Carriage Varnish for inside work	0	16	0
Extra Pale Paper Varnish	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	5	6
Berlin Black	0	16	0
Knotting	0	10	0
Best French and Brush Polish	0	10	0

TO CORRESPONDENTS.

M. & C. (Amounts should have been stated).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

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All communications regarding literary and artistic matters should be addressed to THE EDITOR: those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays*. N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted*. † Denotes *provisionally accepted*.

BROMLEY.—For golf club house, Sundridge Park, Bromley, Kent. Messrs. Swan & Norman, architects, 8, Clifford's-inn, E.C. Quantities by Messrs. C. Stanger & Son, 21, Finsbury-pavement, E.C.:—

	A Building.	B Drainage.	C Flèche.	Total.
F. P. Duthoit	£3,182 0	£185	£62 0	£3,427
Arnaud & Son	3,160 0	181	60 0	3,401
Grubb & Son	3,135 0	192	60 0	3,387
Lewis Evans	3,130 0	180	60 0	3,370
Crossley & Son	3,082 0	172	58 0	3,312
R. Lowe	3,005 17	215	58 3	3,279
T. D. Graty	2,995 0	187	70 0	3,252
Larke & Sons	2,960 0	220	70 0	3,250
H. Chapman	2,998 0	187	60 0	3,245
Perry Bros.	2,908 0	215	54 0	3,177
F. G. Minter*	2,895 10	203	57 10	3,156

CANTERBURY.—For the erection of a detached residence, Whitstable-road, for the Trustees of the Wesleyan Church. Mr. Walter Corens, architect, Old Dover-road, Canterbury:—

C. H. Smellie, Eclington, Herne Bay £874

CHELMSFORD.—For bank and manager's house at Chelmsford, for the Capital and Counties Bank, Ltd. Messrs. Clare & Ross, architects, 1, West-street, Finsbury-circus, E.C., and Chelmsford. Quantities by Mr. J. B. H. Low, 97, Cheapside, E.C.:—

Sheffield Bros.	£6,658	E. West	£5,856
F. Johnson	6,100	Smith & Son, Wisbam‡	5,795
Moss & Co.	5,906		

‡ Amended, and accepted on reduced quantities.

[*See also next page.*

DORCHESTER.—For additions to workhouse, for the Guardians. Mr. A. L. T. Tilley, architect, 26, South-street, Dorchester :—

C. E. Slade	£1,040	Watts Bros., Dorchester*	£997

HOVE.—New street works. Mr. H. H. Scott, Borough Surveyor :—

Montgomery-street.

Parsons & Sons, 118, Church-road, Hove*.. £333

Ruskin-road.

W. Whiteman, 59, Clarendon-villas, Hove* £336 17

Kendal-road.

Parsons & Sons, 118, Church-road, Hove* .. £279

ILFORD.—For the erection of school buildings, house, &c., Loxford Hall Estate, for the School Board. Mr. C. J. Dawson, architect, 7, Bank-buildings, Ilford. Quantities by Messrs. Gardiner & Theobald, Great Russell-street :—

Dearing & Son	£9,690	Hammond & Son	£8,982
Davis & Leaney	9,583	F. and E. Davey	8,945
Kirk & Randall	9,416	H. J. Carter	8,850
W. Shepherd	9,277	Foster Bros.	8,784
Holliday & Greenwood	9,232	Barker & Co., Ltd.	8,765
Silas Parmenter	9,034	F. Willmott	8,715
Chessum & Sons	8,990	B. E. Nightingale	8,689
		J. Appleby	8,354

ILKESTON.—For the construction of reservoirs, buildings, &c., in connexion with the waterworks which are to provide a new water supply for the Ilkeston and Heanor districts, for the Ilkeston and Heanor Water Board, Ltd. :—

J. F. Burns	£61,392	Moss & Sons	£48,750
Cooke & Co.	57,850	T. Smart, Nottingham*	48,360
Vickers, Ltd.	57,000	Ashley	48,299
Davis & Drake	55,000		
J. F. Price	51,750		

LONDON.—For the foundations of Bermondsey Police Station and Court. Mr. Dixon Butler, architect. Quantities by Messrs. Thurgood, Son, & Chidgey :—

Foster & Dicksee	£5,990	Spencer Santo & Co.	£4,680
Higgs & Hill	5,350	J. Parker	4,590
Ashby & Horner	5,348	Martin Wells & Co.	4,462
Lovatt	5,238	Killby & Gayford	4,420
Lawrence & Sons	5,214	Holloway Bros.	4,395
H. J. Williams	4,997	Clarke & Bracey	3,939
Mowlem & Co.	4,827	Grover & Sons	3,874
Lascelles & Co.	4,730		

LONDON.—For alterations to house, Creasingham-road, Lewisham, for Mr. H. H. C. Ball. Mr. Alfred Roberts, architect, Greenwich, S.E. :—

C. Robson	£325	A. Bentley*	£243
Kennard Bros.	280		

NEW BARNET.—For alterations and enlargement of Church of England Schools, Potter's-road, New Barnet. Mr. F. Child, F.S.I., 63-66, Chancery-lane, W.C., and New Barnet :—

	For completing scheme.	For part to be now carried out.
J. Stewart	£1,126	£845
Voller & Goodfellow	1,075	760
Patman & Sons	925	645
Wells & Son	975	612
J. Porter	860	537

LONDON.—For additions to Glenwood, Westcombe Park, S.E., for Mr. T. E. Scrutton, K.C. Mr. Alfred Roberts, architect, Greenwich, S.E. :—

Kennard Bros.	£1,689	H. Groves	£1,311
W. Mills	1,331	T. D. Lang*	1,250

ONGAR (Essex).—For partial reconstruction and sanitary work at Forest Hall, Ongar. Mr. H. Phelps Drew, architect, 33, King-street, Covent Garden, W.C. :—

J. & C. Bowyer	£338 0 0	Norton, Chelsea*	£329 10 6
Noble	335 0 0		

WALTHAMSTOW.—For the erection of new classrooms and cloakrooms, and sundry alterations and additions, to the Higham-hill and Forest-road Schools; also boundary wall at rear of Board's offices. Mr. H. Prosser, Architect to the Board, School Board Offices, Walthamstow :—

—	Alterations and Additions, Higham-hill Schools.	Alterations and Additions, Forest-road Schools.	Boundary-wall, Board's Offices.
	£	£	£
Viney & Stone	3,384 0 0	1,287 0 0	70 0 0
Pollard & Brand	3,315 0 0	1,150 0 0	67 0 0
B. E. Nightingale	3,180 0 0	1,100 0 0	57 0 0
Sands, Palmer, & Co.	2,985 6 0	1,052 9 3	51 7 6
Davies & Clayton	2,379 10 0‡		47 10 0‡
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